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STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

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☞ The *Mechanical Engineering* department of this paper will be under the charge of Mr. ZERAH COLBURN.

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., No. 9 SPRUCE ST.

Saturday, July 2, 1853.

Erie Railroad.

The Erie company have done well in not declaring a dividend. None had been earned to be given, and in ordinary cases none would have been expected. It was not supposed, however, that considerations drawn from this fact would exert much influence with the directors. But the Erie has been unlike other companies. Its policy has been that supposed to be the one best adapted to accomplish a desired result; *to raise money.* For this purpose erroneous estimates have been made, dividends declared that were not earned, and reports made to the Legislature that were notoriously incorrect. The apology now offered is, that if the truth had been made known, the road could not have been built. This, under certain circumstances, might have had some plausibility, but unluckily *success*, which, in popular estimation, often justifies a departure from the strict boundaries of prudence and principle, has failed in the present instance to sanction either the wisdom or the expediency of the course pursued. Men, whose superior sagacity often sees success in a course which violates the popular opinion or prejudice of the day, may have a warrant for their conduct in their clearer vision. But in such cases, they must *achieve* success, as a proof that they *fore-saw* it.—Not to succeed is to be ruined, and the losing party must pay the double penalty attached to failure and incompetency. The directors of this company must look out that they do not find themselves in this category.

In omitting a dividend, we have the announcement of a new policy, that dividends are not to be declared unless they are *earned.* This is all.—For aught the directors tell us, a dividend may have been earned. We *know* nothing about the matter except what *street* reports tell us. The Co. are as silent as ever. Of this we do not complain. We are well aware that since the change in their policy, the directors have not had sufficient time to investigate thoroughly the condition of affairs. To do this will require delay, and as the directors for the future must show a good reason for every act, we were in favor of passing dividends till the amount of the *earnings* of the road had been accurately ascertained.

A step in the right direction has been taken. To avail anything, it must be followed up. Great errors have been committed, which can only be retrieved by the ablest conduct for the future. Where mistakes or misconduct can be directly attributed to the relations that certain parties sustain toward the company and the public, these relations must be changed. If parties occupying high and responsible positions in the company, speculate in its stock, in a manner which may bring *their* interests and those of the *company* in conflict, they should be displaced. Suppose the party who is the medium of information to the public of the state of the company's affairs, to hold half a million of its stock and bonds, on speculation. His interests are to carry his securities up to the highest figure. The most efficient way to do this will be to create a favorable opinion as to their value. It is for his interest to represent the earnings as *large*, and the cost of the road as *small*, as possible. May not such temptations in time, get the better of his honesty? And is there not great danger that in the end his statements will express his *wishes*, rather than the fact? Has not such been the case with the Erie? Can the discrepancies in its past history be explained in any other manner? Under such temptation, is the process from strict integrity to what in the end may be sheer dishonesty, a natural one? There is no question that such is the result.

Is it not a matter of public scandal for a person high in office in any incorporated company to speculate in its stock or bonds? Are not such things violations of all correct principles in the management of a railroad company, and should not such persons be immediately removed from the places they occupy?

We believe a majority of the directors of the Erie road to be honorable men, who have labored with a single eye to the good of the company. But these men have been led to approve measures against their better judgment, under the pressure of a real or fancied necessity, or were not fully conscious of the character of the acts they have been sanctioning. We state these things because the parties responsible for the *past*, have still the management of affairs, and we want to know how radical are to be the reforms that are to be effected, and how deep the conviction of past errors.

The past management of the Erie road has been disgraceful. It has brought the company to the brink of ruin. It can only be recovered by a thorough change in the policy previously pursued. We must know in due time what this policy is to be. We feel great solicitude upon this point, for it requires some stretch of credulity to believe that men who can commit great mistakes, possess qualities in striking contrast to those already displayed. The directors must bear in mind that a most difficult task is before them. They have no longer, as formerly, the confidence, and sympathy of the community. They will now meet with censure where they have had universal approval. In common phrase "the public are after them." For one, while we shall be most happy to witness favorable changes, to speak encouragingly when we can commend, and to do all in our power to promote the advantage of the road, we intend to scru-

tinize, as we have done, every act of the directors. They must understand that they have rendered themselves, liable to the severest censure, that to recover the ground they have lost, and to restore to the company the prestige it once possessed will require an herculean effort; that the task before them is no child's play, but one that will tax their energies to the highest degree. If they are equal to the labor before them,—well. If not they had better give place to more competent hands. For the future we hope to have nothing that we cannot commend. But we certainly shall not remain silent when we see anything to reprove.

Valuable work upon Locomotives.

RAILWAY MACHINERY; a treatise on the *Mechanical Engineering of railways*; embracing the principles and construction of rolling and fixed plant, in all departments. Illustrated by a series of plates on a large scale, and by numerous engravings on wood. By Daniel Kinnear Clark, *Engineer*. BLACKIE & SON, *Publishers*, Glasgow, Edinburg, London and 117 Fulton street, New York.

We are indebted to the New York agent of the house of Blackie & Son,—George Taylor, Esq., 117 Fulton street,—for the 17 issued numbers of this beautiful and valuable work.

The divisions of this work extend to

1st, Inside and outside cylinder locomotives and tenders, with single or coupled drivers; bogie and tank engines for passengers and freight.

2nd, Passenger carriages.

3rd, Goods, baggage and horse vans.

4th, Wagons for freight, coal, etc.

5th, Turntables, shifting tables, switches, cranes etc.

6th, Tanks, water cranes, coke ovens, pumps, etc.

7th, Signals, rotating, pendulous, Lamp, Ball, Fog, etc.

8th, Platform scales, as Fairbank's, etc.

This work contains the best published information extant upon locomotives. Each number is a large quarto, containing two or three large engravings on copper, together with sixteen pages of letter press and wood cuts. The work is furnished to American subscribers at the low price of 62½ cts. per number, and will be completed in about 24 numbers.

The first two numbers give a history of the successive changes and improvements made upon the engines of the London and North-Western and Great Western roads. The third, fourth and fifth numbers contain a practical and thorough discussion and explanation of the various valve motions, the "link motion" being treated in the most ample manner. The sixth to tenth numbers inclusive are devoted to the mechanical action of steam in the locomotive, including the effects of the valve motion upon the suppression, compression and release of steam in the cylinder; the effect of form of blast pipe, back pressure, effect of exposure of the cylinders, &c. The eleventh to fourteenth numbers are devoted to a consideration of fuel and the general laws of combustion, showing the effects of different proportions of heating surface, and containing the results of some very valuable investigations and experiments upon this matter. From hence to the seventeenth number the investigation of the locomotive is made, as to its features as a carriage, including the balancing of weight of engine, and particularly the counterbalancing of the moving machinery. From the seventeenth number forward the work will be devoted to the details of construction of the best examples of English engines, which are already commenced in a practical manner, and illustrated by a profusion of engraved details.

To show the practical character of the work and its general style, we will present Mr. Clark's conclusions from the inquiry into the proportions of heating surface and blast-area of locomotive boilers, pp. 138:

"It appears from all that has been said, that in the proportion of boilers the elements which practically regulate the area of blast-orifice are, the grate-area, the flue-areas of the tubes and the ferrules, and the sectional area of the chimney; and, in general, the wider the flue areas in proportion to the grate, and the smaller the chimney, within the limits that have come under our inquiry, the wider is the relative blast-area competent to the generation of steam.

"Of the air space of grate and the flue-ways, the ferrule area at fire-box ranks first in importance, the tube-area next, and the air-space last. Within practical limits tube surface is of no moment, nor is ferrule-area at smoke box, so far as they are found to affect the blast-area. These conclusions, by direct experiment, are in harmony with our general ideas of the motion of gases.—The air, on entering the grate, is fresh from the atmosphere and of the same temperature. Its volume is therefore of the smallest, and it enters with ease; above the bars, it at once expands by contact and combustion with the fuel, and while its volume is thus greatly enlarged, it at the same time meets with extensive superficial resistance from the coke. The enlargement of volume implies a corresponding increase of velocity through the fuel, and as the resistances to the motion of gases along friction-surfaces is as the square of the velocity, it is altogether probable, apart from the evidence of direct experience, that the greater part of the grate or fire-box resistance takes place above the bars, and is mainly independent of their number and thickness. The atmosphere of the fire-box, on its departure through the ferrules, carries with it at least two-thirds of the heat of combustion, even on the rudest estimate, and its volume must be several times as great as that of the air which passes through the grate. Taking it at only four times, then it must pass through the ferrules, had they even an area equal to the air space, at four times the speed; but the ferrule area is from one-third to one-seventh of the air space, take a mean of one-fourth; then, as the speed must be increased as the flue-area is reduced, the gases of the fire-box must move 4 times 4, or 16 times as fast through the ferrules as through the grate. This abundantly explains the very marked influence of the ferrule area on the facility for draught. As the smoke passes along the tubes it cools to a temperature of 300° to 600° or thereabouts, and contracts, and therefore passes with a constantly reduced speed till it is discharged into the smoke-box; and the very inferior velocity of its exit there freely explains the inferior value of the absence of the smoke-box ferrules in relieving the draft. The virtue ot liberal flue-way is inapplicable to the chimney, as the smoke is here *forced* as well as *drawn*; and whereas all other air passages may, with advantage be made of easy section, the chimney area must, fully to develope the exhausting action of the blast, be specially reduced to a small fraction of the flue room.

"These conclusions weaken the force of the ordinary objections to long tubes, that their great friction-surface is the cause of the small blast orifice with which long boilers have been worked. It is rather the restricted grate-area and flue-ways, than the mere tube surface; for it has so happened, unfortunately, that where long tubes were adopted, the fire-box was overhung, for the sake of confining the wheel-base; and the conditions of stability demanded the smallest possible back-weight, and, therefore, the minimum area of grate.

"The question of the desirable proportions of boilers has been rather complicated by a variety of circumstances,—of the form of the chimney entrance, the form aud level of the blast-orifice, and so forth. But, in similar circumstances, the widest orifice, in relation to the grate, has been obtained with the narrowest chimney on record,—that of No. 10, L. N. R., of which the area is a little less than one-fifteenth of the grate-area. There is probably no limit to the advantage of width of flue-area; it has at least been found of sensible benefit in easing the blast-orifice, up to the widest observed limits. The level of the blast-orifice, in conjunction with a suitable diameter of chimney, are together more influential than any other single circumstance in easing the orifice, and fortunately they are just the most accommodating elements; for whatever proportions may be imposed upon the boiler in compliance with certain conditions of stability, weight, or arrangement, there can be nothing to interfere with the adoption of the most efficient chimney and blast-pipe. To illustrate what can be effected in this way, the "Sphynx" furnishes a good illustration in point: with a tube area of ·28 (of grate,) a ferrule-area of ·20, and a chimney-area of ·12, the orifice at the most efficient level is 1-86th of the grate. Were the chimney of this engine reduced to the most efficient proportion, or ·066, almost one-half the actual area, the orifice, judging by analogous cases already noted, might be further enlarged to 1-66th of the grate. Again, the Hebe, with an ordinary tube-area, and the smallest of ferrule-areas, ·09 or 1-11th of the grate, and a chimney of ·075, has an orifice of 1-133d; were the orifice to be sufficiently lowered, it ought to be capable of enlargement to as great an extent as that of the Sphynx, or nearly one-half wider, making an orifice of 1-94th of the grate; and a reduction of the chimney would widen the orifice to at least 1-90th. As these boilers are of extreme proportions, rivalling even the celebrated "long boiler" in length of tube and limited ferrule-area, we feel justified in concluding that even with the most unfavorable proportion of boiler of the most various dimensions, the blast-area need never be less than 1-90th of the area of the grate; and in boilers of ordinary ferrule-areas equal to ·20 or 1-5th of the grate, the orifice may be as wide as 1-66th of the grate. These are conclusions of some importance, for they put an end to those loose speculations on the consumption of steam power in back pressure to provide the necessary force of blast for long-tube boilers, in which even men of experience have indulged; as it plain-

ly appears that injuriously small orifices are, in almost every case, chargeable to mal-arrangement of smoke-box details. In discussing the subject of back pressure, it was found that, in well arranged and well proportioned cylinders, like those of the "Great Britain," with a blast orifice 1-107 of the area of cylinder, the back pressure of exhaust is practically nothing. The question thus resolves itself into the practicability of using a blast-area of not less than 1-107th of the cylinder, for one great object of an easy boiler and a wide blast-pipe is to secure a practically perfect exhaust.—This question properly belongs to another chapter, in which the relative proportions of the boiler and the engine are to be discussed. Meantime, if we take even the engine No. 30, M. B. R., the grate of which is confessedly too small, or conversely the cylinder is too large, being 5-27th of the grate, the orifice, which was at the time of observation, 1-306 of the cylinder, may be enlarged to 1-17. This case, we must confess, is beyond our remedy, on account of the extremely small ferrule-area at the fire-box in conjunction with the limited grate; and it must be noted that the tubes of this engine are reduced from 1¾ to 1⅝ inch outside diameter, in the fire-box tube-plate. If, however, we take the "Sphynx," with a more liberal flue, and of which the cylinder is 1-6th of the grate, much above the average practice, the orifice may be widened to 6-66 or 1-11th of the cylinder, which would be practically perfect. With No. 124, C.R., having an orifice at present equal to 1-227th of the cylinder, a reduction of chimney and a re-adjustment of the blast-pipe, would permit of an orifice 1-9th of the cylinder. With No. 51, C. R., the orifice, now 3-43, might be 5-53d of the cylinder; and with the "Great Britain," the orifice might be 1-55th, though for this there would not be any necessity.

"In short, though it would be premature in this place to consider the fitting proportions of cylinder and boiler conjointly, it may safely be concluded that, in all cases, even with the most contracted flue-ways, the blast orifice may, by a proper adjustment of chimney and blast-pipe, be made wide enough, to permit of a practically perfect exhaust, where there is a properly protected cylinder, properly proportioned to the boiler.

"Recapitulation.—1. In the same boiler, the vacuum in the smoke-box varies directly with the blast-pressure. For different boilers, the vacuum due to a given blast-pressure varies considerably, but as a general result, the vacuum in inches of water is about equal to the blast-pressure in inches of mercury.

2. The relation of the vacuum to the blast is not materially affected by the point at which the steam is cut off.

3. The blast retains its property of exhaustion within all observed limits of speed and steam pressure,—such that even at the highest speeds, the vacuum rises steadily with the blast.

4. The exhausting power of the blast, or its efficacy in creating a draught, is largely dependent on the form and size of the chimney, and the form of the blast-pipe; and that is reckoned to be the most efficient chimney which admits of the widest blast-orifice.

5. For a given boiler, there is but one diameter of chimney of greatest efficiency. For greater or less diameters the (blast) orifice must be reduced.

6. The best form of blast-pipe is that which projects the steam straight up the chimney. The orifice must also be truly concentric with the chimney, and it should be bevilled up to the edge on the outside. The body of the blast-pipe should be very wide and should be gathered in chiefly at the nozzle.

7. The smoke must have free access to the chimney, either by widening the entrance, with a bell form base, and cutting out the crown of the smoke-box; or, what is as good, by keeping down the blast-orifice to a level below the crown of the smoke-box, equal to the diameter of the chimney or thereby, and giving the chimney a square entrance; or by a combination of both expedients, In short, the blast should be projected *through* the smoke, and not above it. Thus, a straight vertical blast-pipe is to be preferred to the double, bridge-pipe in common use, both on account of the superior discharge of the steam, and because it affords much less obstruction to the pasage of smoke.

8. of the relative vacuums in the smoke-box and the fire-box, the latter varies from one-third to above one half of the former; in other words, the resistance of the grate and the fuel to the passage of air and smoke varies from one half to more than equal the resistance offered by the tubes. In the boilers having the widest flue-way through the tubes and the ferrules, the resistance of the tubes is proportionately the lowest.

9. The question of the internal proportions of boilers, without reference to the demands of the cylinders, resolves itself practically into a comparison of grate-area, tube-surface, and blast-area.

10. With the same proportions of boiler, the actual dimensions, within the widest observed limits, make no difference on the ratio of the grate-area. It follows that the smallest of locomotives may be as favorably proportioned as the largest.

11. The elements which regulate the area of blast-orifice, are the grate-area, the flue areas of the tubes and the ferrules, the sectional area of the chimney, and the capacity of the smoke-box. The larger the grate-area, the wider the flue-areas, the smaller the chimney, and the less the capacity of the smoke-box, within observed limits, the wider also may be the blast-area.

12. The grate-area being assumed as a standard for comparison, the elements of the boiler proper, which affect the blast-area, are in order of importance, as follows;—1st, The ferrule area at fire-box; 2d, the tube-area; 3d, the air-space of grate; 4th, the ferrule area at smoke-box; 5th, the tube surface. The influence of the last two, within practical limits, is very slight.

13. Of the appendages to the boiler,—the smoke-box and the chimney,—the latter has as much or more influence on the area of blast-orifice, than any other single circumstance. For, it was found that a proportionately smaller chimney operated as efficiently for easing the orifice, as a smaller ferrule area did in narrowing it.

14. The area of the smallest observed chimney is about one-fifteenth of the grate-area; and this proportional area yields a wider orifice, under the same circumstances, than any greater chimney-area, The ratio of *one-fifteenth* is therefore the best so far as observation leads us. A length of chimney about four times the diameter is probably the greatest length necessary for developing the bestaction of the blast.

15. The capacity of the smoke box also affects the action of the blast. The most suitable capacity has been found to be three times, in cubic measure, the area of grate in square measure; or three cubic feet per foot of grate.

16. In boilers of ordinary proportions, of which the ferrule-area at fire-box is one-fifth of the grate-area, or thereabouts, and the tube-area about one fourth, the orifice may, by the best adjustment of the fire-box, blast-pipe, and chimney be made as wide as one *sixty-sixth* the grate-area. and in even the most unfavorably proportioned boilers where the ferrule-area may not be above one-tenth of the grate, the orifice may be as wide. as *one-ninetieth* of the grate.

17. The amount of the blast-area being regulated mainly, if not entirely by the boiler, it is practically independent of the dimensions of the cylinder.

18. Advantage being taken of the known means of perfecting the action of the blast, the orifice may in all cases be made wide enough to permit of a practically perfect exhaust, when the cylinder is proportioned to the boiler. And, even with extravagantly large cylinders, all the useful area of orifice may be obtained, except in boilers having very small ferule-areas, one-tenth of the grate or thereby.

19. It follows, generally, that, as the orifice depends so directly on the grate and the tubes, the essential advantages of a large grate and a wide tube-area, consists mainly in the facilities they afford for supplying a sufficiency of steam, with an easy blast, a liberal orifice, heavy loads, and high velocities."

The above, with the remaining part of the work, are mostly the results of experimental researches made by Mr. Clark upon the greatest lines in England and Scotland, with every variety of style and proportion of engine. These discussions are of the greatest importance to locomotive builders and operators, and so far as the principles of the generation and application of power are concerned will apply equally as well here as in England. It is only the practical details of the construction of our engines that differs from English engines, in such a manner as to make their work unsuited to our engines. The framing, the connection of drivers, the truck, the chimney—these are nearly all of the points of difference. This work of Mr. Clark's might readily claim to be adopted here, as an exposition of American engines, and is recommended to all builders, engineers and machinists as giving more useful, practical and philosophical instruction at a cheaper rate than could be obtained by the purchase of any other work.

Milwaukee and Lacrosse Railroad.

We learn from the Milwaukee *Wisconsin* that Messrs. Bradley, Whittemore & Co., of Burlington, Vt., have taken the contract for building the road from the city of Milwaukee to Portage City, Columbia Co., a distance of about 100 miles; one-fourth of the pay for the same they take in capital stock of the Company. Their contract consists in grubbing and clearing, culverts, roadway, cattle guards and ties, and laying of the rails for a single track, to be completed by the 1st of January, 1855.

Memphis Convention.

Below we give the resolutions adopted at the Southern Commercial Convention, recently held at Memphis. They may be regarded as the expression of the opinions of the entire southern portion of the confederacy upon subjects of very great importance. We have no doubt the action of this convention, (which was the adjournment of the one held last year in Baltimore,) will be productive of beneficial results, though in a different manner, probably, from that contemplated.

The prosperity of the North has not resulted from conventions. The South cannot build itself up by talking, although conference and a mutual interchange of opinion, may do much toward discovering the true pathway to success. We regret we have not space for fuller details, but we can only give the resolutions, which are as follows:

NAVIGATION.

Whereas, The important questions of deepening the channel at the mouth of the Mississippi, and the improvements of the rapids in said river, known as the Desmoine and Rock River rapids, have already attracted the attention of Congress, and under appropriations made by it, competent engineers have made surveys and reports, showing that said improvements are practicable—and as these works have a most important bearing upon the interests of all the States lying upon this great river, and its affluents—and the appropriations made by Congress are manifestly inadequate for the purposes desired, and disproportioned to the objects and results to be obtained. Be it

Resolved, That this Convention strongly urges upon Congress, prompt and liberal action upon these subjects, and earnestly request that all the Senators and Representatives in Congress from the States represented in this Convention, use their best efforts to procure at an early day, the necessary appropriations for their accomplishment.

And whereas, similar reports have been made by boards of competent engineers, appointed by the Government of the United States, which show the entire practicability of improving the harbors of Charleston, Savannah, Mobile, Baltimore, Richmond, Wilmington and Galveston and the estimates by them prepared for the purposes, do not involve any very large outlay of money, therefore

Resolved, That this Convention also urge upon Congress speedy attention to these eminently meritorious claims upon the United States.

THE PACIFIC RAILROAD.

Resolved, That a railroad from the Mississippi valley to the Pacific ocean is demanded not only by commercial and individual interests, but by our national necessities.

2. That as soon as the surveys, recently ordered by Congress, are completed, the General Government should adopt such steps as will insure the completion of the main trunk of said road, at the earliest possible period.

3. As the General Government would be expected to construct only one main trunk, it should be located on that route which scientific explorators shall show, combines, in the greatest degree, the advantages of genial and temperate climate, fertility of soil, cheapness of construction and the accessibility at all seasons, from all portions of our Union.

4. That, in the opinion of our convention, it is right, expedient and proper that the General Government should make liberal donations of the public lands to the different States bordering on either side of the Mississippi, to enable all sections of the Union, however remote, to connect themselves with the main trunk.

THE TEHUANTEPEC ROUTE.

Whereas, the project of opening a communication between the Atlantic and Pacific oceans by railroads across the Isthmus of Tehuantepec recommends itself to the warm support of the whole Union, and particularly to that of the Western and South-western States, by its great practicability the facility and cheapness of its construction, as well as the short time required for its completion, thus affording to the commerce and travel of not only the United States, but the world, a cheap and easy access to the Pacific coast.

Resolved, That our Representatives in Congress be requested to press upon the Government the necessity of bringing to a favorable termination, as soon as possible, the negotiations pending in regard to the right of way across said Isthmus, and that they be also requested to maintain by all legitimate constitutional means, the rights of American citizens in the grants made by the Mexican Government.

MANUFACTURES.

Whereas, the Southern States of this Union now have, and for a long period must have, a virtual monopoly in the productions of the raw cotton of commerce; and, whereas, it is of vast importance to these States that their great staple should be sent abroad in its most valuable form; and whereas, it is believed that this staple can be wrought up with extraordinary cheapness and facility on and near the fields of its growth; therefore, be it

Resolved, That the president of this convention appoint a committee of five members, who shall be requested to prepare for publication and distribution, particularly in the manufacturing districts of Europe, a full report of the peculiar facilities offered by the Southern and Western States for the manufacture of cotton, and that this report be published as a part of the proceedings of this convention.

ON EDUCATION.

Resolved, That this convention earnestly recommend to the citizens of the states here represented the education of their youth at home, so far as practicable; the employment of teachers in their schools and colleges, the encouragement of a home press, the publication of books adapted to the educational wants and the social condition of these states, and the encouragement and support of inventions and discoveries in the arts and sciences by their own citizens.

ON STEAMERS FROM SOUTHERN PORTS.

Resolved, That this convention regards the establishment of a quick communication by steam between four southern ports and Europe, and encouragement and protection of this system by the national government, connecting therewith ample mail facilities as a necessary feature in the commercial independence of the south and west.

ON DIPLOMACY CONCERNING COTTON.

Resolved, That the attention of our senators and representatives in congress be called to the propriety of bringing before the administration, the importance of making the cotton interest a subject of instructions to our foreign commercial and diplomatic agents.

HYDROMETIC GAUGES.

Whereas, The investigation of the laws which regulate the rises and falls of the Mississippi river and its tributaries, and the adoption of some system by which the great valley of the Mississippi may be protected from inundation, and the navigation of the western waters be best perfected and secured, are subjects of the deepest interest and importance to the whole western and southern country, therefore,

Resolved, 1st, That this convention recommends to congress, that among the measures calculated to advance the above objects and facilitate the schemes already undertaken, it deems it highly important that the general government should appoint a special corps of scientific engineers to investigate the laws which govern the Mississippi river and its tributaries; to devise the best system of improving the navigation of those rivers, and of protecting their lands from overflow, and if necessary to send abroad a similar corps of scientific engineers to examine the systems of improving rivers adopted in other countries, and to report upon all matters connected with these subjects.

Resolved, That in furtherance of the objects sought, we deem it highly important that a system of permanent hydrometic gauges should be established by the General Government at several points along the said rivers at the principal towns and cities, by which the actual stages of their water may be accurately ascertained from day to day, the depths of their channels regularly sounded, the changes going on upon their banks be marked and recorded, all of which shall be reported to the proper department of the government from time to time.

ADDRESS TO CONGRESS.

Resolved, That a committee of five be appointed by the president of this convention to prepare an address to the congress and people of the United States, on the topics embraced in the action of this convention, invoking their attention to its proceedings and action, and enforcing them upon their consideration, and that this address be published as an appendix to the proceedings of the convention.

ON ORINOCO, AMAZON AND LA PLATA RIVERS.

Resolved, That this convention highly approves the steps which have been taken by the United States Government to obtain the fullest information in respect to the countries bordering the Orinoco, Amazon and La Plata rivers, with a view to opening up the trade of those vast regions to American enterprise, and the Senators and Representatives in Congress from the States represented in this convention, are respectfully requested to use all proper means to obtain the free navigation of the Amazon, by the establishment of mail steamers from the port of New Orleans to suitable points on the South American continent, or in such other mode as may be deemed most expedient to secure to the people of the United States the advantages of trade and intercourse with the regions referred to.

Resolved, That in the opinion of this convention Lieut. Maury deserves the thanks of the American people for the able manner in which he has advocated the proposed projects of uniting by the ties of commerce and common interests, the great valley of the Mississippi with the tropical countries of our sister continent, and we trust his efforts will not be relaxed until the great end in view is fully consummated.

Illinois.

Peoria and Oquawka Railroad.— The annual meeting of this company was recently held at Knoxville, Illinois, at which the following gentlemen were chosen directors, viz:—John G. Foote, S. S. Phelps, A. C. Harding, James Knox, R. Rouse, Geo. C. Bestor, Peter ———, A. H. Danforth, Joseph Thomas.

At a subsequent meeting of the directors, Mr. Rouse was elected President of the company for the ensuing year.

Among the most important measures adopted at the meeting of the stockholders, was the appointment of a committee to confer with the directors of the Northern Cross and Central Military Tract companies, upon the terms and point of connection at or near Galesburg.

Contracts, on quite favorable terms, have been made for the entire completion and equipment of the road east of Peoria to Middleport. The first section, from Peoria to the Mississippi and Chicago road, about fifty miles, has been taken by Messrs. Cruger, Bucknor, Hurry & Secor, of New York. The section from the Mississippi road to Middleport has been taken by Messrs. Weld & Co., of Boston. The remaining distance from Middleport to the State line, will be built by the Logansport and Pacific company.

The entire distance from Peoria to Middleport is to be fully completed and put in running order by the first day of January, 1855.

Depreciation of Engines

If an engine, fit for a certain extent of service, is bought new, to-day, for $8000, and the price of an engine of like power and mechanical perfection will be reduced by five years experience and competition, to $7500, there is $500 depreciation in the valuation of the same amount of motive power.

The estimation of the condition of the engine, with reference to its value, requires a knowledge of the duration of each of its important parts. The furnaces, trucks and tires, require the most frequent renewal.

Next to these are the brasses, steam-packing, tubes and spark arresters. The duration of an iron furnace when of sound iron is from five to six years. There are longer and shorter limits than these, depending entirely upon quality of iron and management; but five years is a fair average. The labor and stock for renewing an iron furnace of 60 square feet will cost a railroad company when applied in their own shop, about $400. Cutting and piecing tubes at the same time will average one dollar per tube, or $150 per sett. New truck wheels costing $60 per sett will be needed once a year, or oftener. The duration of a set of tires 2 inches thick of Bowling iron is about 75000 miles, or three years, with passenger engines, and not so long with freight engines. To renew a set of four, 6 feet wrought tires costs $400. To renew a set of six 4½ feet tires will cost $450. To renew the same number and size of chilled cast iron tires will cost $140. These tires cost nothing for repairs, are equally safe, and efficient as wrought tires and require a far less outlay for renewal, as shown by the expenses given above.

The cylinders, barrel] of boiler, braces, and frame have the longest duration of any of the important parts of an engine. These may be considered as measureing the *life* of an engine. An explosion occurred upon the Baltimore and Ohio Road, of a boiler which had been 13 years in use. To see if the iron had become defective and had thereby become incapable of resisting the usual strain, pieces of the shell were tested and found to have a cohesive strength of 60.000 lbs. per square inch of cross section, showing that the iron had retained its original quality.

It is probable that twelve years is about the duration of an engine, for by that time the successive renewals will have embraced nearly all of its parts, while the odd compound of the original and the renewed parts will be so antiquated and patched as not to realize one third of the first cost of engine. If an engine runs 300.000 miles in this time its repairs will range from $18000, upwards, making its total depreciation of original and renewed parts about $25.000. Were it not from the destruction of engines by accidents the expense for repairs would not much exceed 6 cents per mile run, under the ordinary system pursued.

If the real depreciation of engines is desired for any period of use, as one year after first use; it will be safe to allow 6 per cent on one third the value of the engine (to include the shell of boiler, cylinders, braces and frame, and some other parts) to allow 35 per cent on the cost of tires, 100 per cent on truck wheels, 20 per cent. on fire-box, 10 per cent on tubes, 20 per cent on brasses, 20 per cent on cranks and axles, and from 10 to 20 per cent on various other parts of the work. For illustration the parts given as being of one third of the full value of the engine will be worth $175 less at the end of the first year; the tires $140 less; the trucks $180 less; $80 to a $100 less on fire-box; $75 to $100 on tubes; $100 on brasses; $80 less on cranks and axles, and say $200 on other parts; so that an engine in full use for the first year of its service, without repairs, would depreciate $1000. This proposition appears obscure when it is known that the sum of depreciation and repairs reaches over $2000 yearly, but it can be understood when it is stated that the depreciation of $1000 is upon first construction alone and not upon combined original construction, repairs, and renewals. A part of an enginemay depreciate $500, and it may consistently require $1500 to replace it, from the manner in which repairs must be made and the expense of getting the engine in shape for repairing. It can readily enough be proved, as we can show that the expense for keeping up an engine 12 years, and its unavoidable depreciation in market value at the end of that time, must be three times the original cost of the engine, while no one would say. while in full view of the original boiler shell, cylinders and frame, that the old engine had been entirely renewed three times.

This point, by which it appears that the renewal of a part ordinarily costs from two to four times what would be the proportion of the same part for its original construction, should show the great necessity of making an engine in the best possible manner, of the strongest and most durable materials, and of the most simple construction. It may not cost $40 to put in an unsound sheet of iron in a furnace, while it may cost $200 to renew it. The expense of keeping up an engine must be its repairs, its annual depreciation, and its interest.

To state the actual depreciation of an engine requires that all parts renewed, and the length of their service, should be known. An engine in full use may at the end of two years be worth $2000 less than first cost, while in consequence of subsequent renewals, the same machine, may become worth within $1000 of first cost. The market value of an engine must depend on the *judgment* of the one who values it, but his judgment can be worth nothing without proper means for judging. The market value of a second hand engine will probably be less than its real value, as there must be a certain extent of ignorance of its condition, and there is not the same security in a purchase from a user as from a builder.

The question of the extent of depreciation of engines, posesses an additional interest from its bearing upon the number required to be manufactured yearly, to supply the ordinary wear, and for the equipment of new roads, and to meet the increasing business of old ones.

There are now in operation in the United States, 14,000 miles ot Railway upon which are about 3500 locomotives at work averaging one to 4 miles of road. In New York, by the returns of the State Engineer, there were 446 locomotives to 1900 miles of road. In New England, the proportion of the locomotives to the mileage, is greater, some of the roads having one to two miles of road. The Boston and Lowell has 21 engines for 27 miles of road; the Boston and Worcester 29 engines to 69 miles of road and branches; the Reading road has over 100 engines for less than the same number of miles of road, the Erie road has 142 engines for about 500 miles of road, and has some 30 more ordered. The Baltimore and Ohio road 411 miles long, has 144 engines and 25 more ordered. The Southern and Western roads have fewer engines to their mileage then those of the North. We think we are not certainly above the mark in estimating the number of locomotives in the United States at 3500. The life of an engine may be placed at about 12 years. This would give 8½, as the per centage of annual depreciation. We estimate the increase of equipment upon roads in operation at 6½ per cent, which is probably too low. The number required to keep the old stock good, and to meet th eincreasing wants of old roads will be 525.

As we are opening at least 3000 miles of road yearly, the number of engines required for these at the ratio of one to every 4 miles of road will be 750; shewing that 1400 locomotives are now annually required by our roads in operation and progress.

At the rate we are going on with our roads it would appear that our locomotive establishments have a good prospect before them for the present at least. We have prepared a list of these works, and a statement shewing the capacity of the greater par; of them, which we shall probably give in the next number so that our builders can judge for themselves of their ability to supply the probable future demand.

Exhibit of the Lawrence burgh and Upper Mississippi Railroad, to the Stockholders.

GENTS: I am happy to announce that on the 30th day of May our road was opened for business from Lawrenceburgh to Greensburgh, distance 42 miles, and that since the first day of the present month, regular passenger and freight trains have every day (Sundays excepted,) passed over that distance; 22 miles have been ballasted, and the residue is in progress. The work west of Greensburgh is advancing towards completion, so that we can fairly hope to have the line between Shelbyville and Indianapolis, 26 miles, in use by the 1st of August, and the remaining distance by the 1st of October. Some portions of the track have been laid at Shelbyville and at Indianapolis, and will be continued from each point, as also from Greensburgh west, as fast as the grade will permit.

All the rails purchased last year have arrived in this country and have been delivered on the Ohio, except about 500 tons which, owing to delay in shipment from abroad, and the unusually early suspension of navigation on the Ohio, will probably remain at New Orleans until next fall. Fortunately the Company had purchased enough for the line to Indianapolis, and also a branch of 7 miles to Milford, so that sufficient for the use of the main line is on hand, and the only inconvenience to which the Company will be subjected is the delay in laying the branch.

Our connection by R. R. between Lawrenceburgh and Cincinnati will not be completed as early as was anticipated. The Ohio & Mississippi Co., not expecting to open that part of their work between those points, until about the first of January next. In the maen time the arrangements are made, by which our business and travel are accommodated by steamboat, the run by water being 21 miles. The line of road will in a few days be completed to the head of the wharf on the Ohio, within 300 feet of the boats, making it very convenient for the transmission of freight and passengers.

Some examinations have been made for the continuation of our route to Cincinnati, and steps taken under the laws of Ohio, to effect that object. Sufficient is known to make it certain that a good

line can be had, and at a cost which the importance of the measure will justify us in encountering. When all the surveys are completed, this matter will be specially presented to the consideration of our stockholders.

Expenditures so far have been for

Right of way	$10,871
Engineering	11,038
Do. on extension to Cincinnati	550
Salaries and incidental expenses	20,153
Taxes	3,600
Paid towards Union Track and Depot at Indianapolis	5,000
Interests and discounts	93,434
Freights and Transportations	94,422
Rails	356,030
Construction east of Greensb'g. 340,126 / do west of do .162,000	502,126
Engines and cars	134,053
	$1,231,277

Our rolling stock consists at present of

7 engines,	44 platform cars,
79 gravel cars,	1 first class passenger car,
25 box cars,	1 second class " "

Eight more engines, 100 box cars, 5 first class passenger cars and 2 baggage cars are contracted for, to be delivered before or by the 1st. of October, besides what are making at the company's shops. This is an increase of 4 engines and 100 cars over what was contemplated at our last report, and from every appearance will scarcely be sufficient to do the business when the road is opened.

Since the statement published in September, the stock of the company has been increased to $1,049,585. Some $30,000 will be added to this amount for sums to be taken by contractors.

Sales of real estate have advanced to $152,781, leaving of real estate unsold $343,282. There is yet due from Decatur County $50,000, and from others, $43,327 for stock subscribed, making, with the real estate on hand, $436,609.

Although, by reason of the great advance in the price of transportation and labor, the cost of our road is to be somewhat enhanced from the original estimates, yet it is among the cheapest roads in the country, and even with the increased equipment which it has been thought best to provide, will not probably reach $1,500,000, including all necessary buildings.

During the three weeks that the Road has been opened to Greensburgh, it has been producing at the rate of $5000 per month, which is fully equal to all that was expected at this point at the present time, and affords full promise, that as it reaches the more important points farther in the interior, the best anticipations of its friends will be more than realized. The Western connections of our road are fast being brought to completion. Since my last letter to the Stockholders, the Line from Indianapolis to Lafayette has been opened for travel, and less than 30 miles of track remain to be laid down to complete the connection between Lafayette and Chicago, affording with ours a through line from the Ohio to Lake Michigan. Other lines pointing west and north-west from Terra Haute and Lafayette are in progress, and will furnish additional business to our Line.

An arrangement has been made between this Company and the Jeffersonville Company, for the use, by the latter, of our Line from Shelbyville to Indianapolis, for the transportation of their freight and passengers between those points. This completes the connection between Indianapolis, Jeffersonville, Louisville and New Albany, and will throw an increased amount of business over that part of our Line. It also makes a connection by Rail Road between Cincinnati and Louisville via Shelbyville, but little farther than by the river, and which will command much of the travel between those places, especially at periods of low water.

G. H. Dunn, President.

June 20, 1853.

Richmond, Fredericksburg, and Potomac R. R.

We copy from the Richmond *Times* the following notice of this road. It is one of the best managed projects in Virginia, and we are happy to learn that its stock is now selling at *par*.

As a matter of general interest, we place before our readers the proceedings of the late general meeting of the Stockholders of this venerable Company. Venerable, because it is in its twentieth year, and among the first after the introduction of the Railroad system.

In every aspect, the Richmond and Fredericksburg Road has been a fortunate scheme, and it is a gratifying feature connected with its fortunes, that its projectors, and the fast friends of the enterprize, through good and through evil report, are yet amongst us, keenly alive to its prosperity and active in promoting it. Every President and Director, from its infancy to the present moment, may yet be found in attendance on the general meetings of the Company, a fact which best illustrates their interest and regard, and well may they be proud of the success which has flowed from their counsels.

Whilst the records of some other railroad concerns exhibit much embarrassment and disaster, and legislative aid is constantly sought for, the Fredericksburg Company has successfully met every difficulty incident to a novel enterprize, and now stands before the public with its capital stock unimpaired in its original value, and yielding regularly to the State and other Stockholders satisfactory dividends. There is another feature in its history to which its friends may turn with peculiar gratification. Of the millions of passengers who have been taken over the road not a single life has been lost. This, indeed, is the consummation of good fortune and good management. It is a matter of surprise, nay regret, to observe that a road which has so fully complied with its obligations to the public and the commonwealth itself, should have any cause to complain of the action of the General Assembly. Like many others, we have been disposed to think that this Company, in contesting the exclusive right of way between the Junction and Richmond, were disposed to distort the features of their charter, and strike for privileges not contemplated. An examination, however, of that section of the charter of the Richmond and Fredericksburg Company, which has elicited the controversy referred to in the report of the President and Directors, induces us to doubt the correctness of the opinion hitherto entertained. That others may judge of the nature of the guaranty intended by the Legislature in the act incorporating the Richmond, Fredericksburg and Potomac Railroad Company, we submit it as follows:

Be it therefore enacted and declared, and the General Assembly pledge itself to the said company. That in the event of the completion of the said railroad from the city of Richmond to the town of Fredericksburg, within the time limited by this act, the General Assembly will not, for the period of thirty years from the completion of the said railroad, allow any other railroad to be constructed between the city of Richmond and Washington or for any portion of the said distance, the probable effect of which would be to diminish the number of passengers travelling between the one city and the other upon the railroad authorised by this act; or to compel the company in order to retain such passengers to reduce the passage money:—Provided, however, that nothing herein contained shall be so construed, as to prevent the legislature at any time hereafter, from authorising the construction of a railroad between the city of Richmond and the towns of Tappahannock, or Urbanna, or to any intermediate points between the said city of Richmond and said towns: And provided also, that nothing herein contained shall be construed to prevent the general assembly from chartering any other company or companies to construct a railroad from Fredericksburg to the city of Washington.

That the General Assembly intended to grant to this company the exclusive travel for every and any portion of the distance between Richmond and Fredericksburg, is made manifest in the section above, we incline to think. The case, however, has been recently fully and elaborately argued by the ablest counsel of our state before Judge Meredith, and all suspense on the subject will soon be at an end.

We are pleased to see from the proceedings that the directors are clothed with the power to relay their track with a heavy bar, and likewise to take into consideration the contemplated connection of their road with the Orange and Alexandria road, at or near the intersection of the latter with the road of the Manassas Gap company. Let their scheme be but consummated, and Richmond will have a connection with the Valley of Virginia at its richest and choicest point, the beneficial results of which will be almost without computation.

Surveys for the Pacific Rail Road.

The surveys now undertaken for the purpose of collecting information in reference to the construction of a railroad from the Mississippi Valley to the Pacific, have now assumed a shape that promisesthe most satisfactory results.

Four expeditions, amply appointed and under the command of skillful and experienced officers, are already in the field, and the report of their operations, sweeping the whole area of our territory between the Mississippi and the Pacific, may be expected by the first of February next. The expeditions are entrusted to chosen officers of the corps of engineers and of topographical engineers, to whose science, and skill the success of our army in Mexico was so largely attributable. It is probably not too much to say that no military organization in the world can produce a corps more adequate to the successful conduct of such a work.

The first of these expeditions is under the command of Major Stevens, late of the engineer corps, and now governor of Washington Territory, and has for its object to survey the region stretching from the upper Mississippi to Puget's Sound. It proceeds from St. Paul's in the Territory of Minnesota, to the Great Bend of the Missouri and Saskatchawan rivers to the most available pass in the Rocky mountains, surveying the best passes in the Cascade range, and the Rocky mountains, from the 49th parallel to the head-waters of the Missouri. It is part of the object of this expedition to determine the capacity of the whole region of the survey to supply, and of the Missouri and Columbia rivers to transport, the materials of the proposed railroad. We learn that a satisfactory report has already been received from Major Stevens, giving assurance that he is already engaged in his operations far beyond the western frontier of the United States. He expected to leave St. Paul's before the first of June.

A second expedition, under the command of Lieut. Whipple, is to survey the region of our western territory adjacent to the parallel of 35 deg. It will proceed from the Mississipi along the head waters of the Canadian, cross the Rio Pecos, and enter the valley of the Rio del Norte near Albuquerque; thence through Walker's Pass in the Rocky mountains, to the Pacific, at some point on the coast of southern California near San Pedro, Los Angelos, or San Diego.

A third expedition under the command of Capt. Gunnison, will pass through the Rocky mountains near the head waters of the Del Norte, by way of the Heurfano river, into the valley of the Green and Grande rivers; thence westwardly along the Nicollet river of the Great Basin; thence north to the Lake Utah, surveying on a return route the best passes of the Wasateh range through the coal basin into the forks of the Platte.

A fourth expedition is to operate in California. Its field is the region west of the Lower Colorado to the Pacific. This expedition, starting from Benicia, in California, will examine the passes of the Sierra Neveda from San Joaquin and Tulare valleys, together with the whole country southeast of the Tulare lakes, to ascertain the best route between Walker's pass, or any other pratic-

able passes in that region, and the mouth of the Gila, and from that point to the Pacific at San Diego.

Each of these expeditions is instructed and fully prepared to subject the region assigned to it to a careful scientific survey, having reference not only to the examination of its capacity for a railroad route, but also to all that may pertain to a thorough geographical knowledge of the country, including not only its topography, but its climate, soil and productions. It is obvious that such surveys, apart from their main object, must contribute very largely to a more accurate scientific knowledge of this vast western domain of the United States. The appropriation made by the last Congress for these Surveys amounted to the sum of one hundred and fifty thousand dollars, and it is intended strictly to confine the expenses of all the various expeditions to that amount.

South Western Railroad.

We copy the following notice of the railroad traversing central Kentucky and Tennessee, connecting Danville, in the former State, with Manchester, in the latter. The project is one of first importance, and we are glad to see that its construction has fallen into the hands of enterprising, efficient and wealthy contractors, who will open the road at the earliest possible day:

This road extends from McMinnville north-easterly through Middle Tennessee to the Kentucky State line, 87 miles, forming a part of the direct road from Cincinnati to Pensacola, Mobile and N. Orleans. Nearly every portion of this line is now in progress of construction, from Covington thro' Lexington, Danville, McMinnville, Winchester and Guntus Landing to Selma, on the navigable waters of the Alabama River, from which point it is proposed to construct one road to Mobile and another to Pensacola. A road is also constructing from McMinnville through Talahoma to Florence in northern Alabama, there to connect with the New Orleans and Great Northern railroad. At Winchester it connects with railroads already in operation from Nashville to Charleston and Savannah.

The South Western road runs along, parallel to, and immediately at the foot of the Cumberland Mountains, located on a table land from 5 to 40 miles wide, and six hundred feet above the general level of West Tennessee. On account of its position, with reference to the natural features of the country, it commands the most desirable location for a north and south road through the State.—The climate is highly favorable for that latitude. Owing to the high elevation of the country, the atmosphere is dry, of uniform temperature, and entirely free from bilious and epidemic diseases. The soil is generally fertile, and on the table lands produces readily all varieties of agricultural productions, while on the mountains are found the best of grazing lands.

There are no natural outlets for trade in this part of the State. Business has mostly been done with Nashville by wagons, a distance of over 100 miles. For this reason the resources of the country have never been developed; the surplus products have had to be converted into a form to transport themselves; into horses, mules, cattle, sheep and hogs, for they would not bear transportation; land is cheap, and the people are behind the progressive spirit of the age. The benefit which a railroad will be to such a country is incalculable. It now abounds in water power, which is valueless. The mountains furnish abundance of coal and iron, which, for the want of a means of transportation, are worthless. A railroad will increase the population, diffuse intelligence, double the value of lands, and develope and give a value to the natural resources of the country.

A glance at the map will show the great importance and value of this line of roads. Cincinnati is one of the great central points of railroads north of the Ohio river. She has nine great trunk lines, radiating to the east, the north and west, while on the south, this is the only line of roads now constructing forming the most direct connection with the Gulf at Mobile and Pensacola. Extending with its connections on the north from the Lakes to the Gulf, it passes through eleven degrees of latitude, yielding every variety of agricultural production. The local business arising from an interchange of these would alone liberally support such a road.

New Orleans has heretofore commanded all the Gulf trade, on account of her position on the Mississippi river, the only outlet for the great west. She is built a hundred miles from the Gulf, with a shifting and dangerous bar at the mouth of the river, and nearly all freight going up or down is subjected to a tax of a dollar per ton for towage. Mobile and Pensacola both are much more accessable than New Orleans, and need only communication with the north by railroad to divide the Gulf trade with her.

This trade is receiving new and important accessions every year, from the South American States, from California and the Pacific Coast.

It would be impossible to estimate the amount of business which will be done over this road on its completion; but there can be no question but that it will be one of the most valuable roads in the country.

Our esteemed fellow citizens, the Messrs. CHAMBERLIN & FERGUSON, have taken the contract for the entire construction and equipment of the South Western railroad, the contract amounting to over two millions of dollars. They are experienced, enterprising and responsible railroad builders, and Mr. Ferguson will soon leave for Tennessee to superintend the vigorous construction of this important road. We congratulate the people of Middle Tennessee on the certain prospect that the Iron Horse will, ere long, traverse the beautiful table lands of the Western slope of the Cumberland Mountains, and bring the north and south into closer neighborhood and better acquaintanceship, to their mutual advantage, commercially and socially.

A Test for Tractive Power.

It would be a very great assistance to railroad companies and locomotive builders, if an accurate and simple test could be devised for the resistance of trains, the traction of engines, &c. Every new improvement in running machinery could thereby establish its superiority, and every useless or un-i philosophical innovation could be exploded at once. It is well known that the money wasted on useless arrangements, to instil an impossible value into them, would test all really useful improvements. How often do we hear a man advance some trifling fact of resistance as being the cause of the whole expenditure of power on railroads.—One man has hit it, when he says that all that prevents engines from pulling as much upon a perpendicular ascent as a horizontal plane, is a "want of adhesion." Another, that the whole expenditure of power upon a railroad is due to the resistance of curves, and he will compare a curve of 700 feet radius to a grade of 77 feet per mile! As the very conception of the ideas entertained by some men prove that they know nearly nothing of the subject they wish to elaborate, it would be a capital thing for an ingenious man to devise a practical test, which should show the feet and inches, pounds and ounces, dollars and cents, of everything proposed as an improvement upon railroad machinery, at least.

The trial of a new improvement is not generally made sufficiently exact to show its real value.—There is a common notion among many mechanics that the test of a thing is its endurance—its safety from failure, by breakage or premature detachment. This covers the primitive ground of the permanence of the thing, but we presume there are many arrangements of cars, brakes, boxes, valve motions, etc., which will last in contant use as long as any other, but which involve an expensive application of power. An improvement must have a philosophical as well as a mechanical value, and *vice versa*.

In these times of gradual improvement, when signal applications are rare among railroad machinery, at least, every new arrangement should be accurately and practically tested. The value of a new thing should be ascertained in cents and mills, its power in ounces and grains. The fact that an engine is placed under different circumstances upon different roads, or in different weather, or with different working, cannot destroy the general principle that a pound of power saved is a pound earned.

A road that has no knowledge of what the different operations of its business should cost, that does not know the details of its expenses, that makes no experiments—such a road cannot be said to have any system of motive power. Such a road may have twenty engines, but cannot tell which is best,—or if it can, cannot tell why.

It is a road that cannot, by its agents, tell the difference between a cord of wood and a ton of coal; between an engine upon eight drivers and one upon two; between a grade of 100 feet to the mile and a level; between one spark arrester and another; between a chilled wheel and a wrought wheel. A road doing a constant and heavy business in any kind of traffic, meeting regular and heavy expenses, ought to know the details of every branch of expense, of every application of power, and of every arrangement of engine.

There is a large class of railroad machinery which is the subject of constant alteration. An instrument which would show the resistances of different arrangements would be, as we have already said, a valuable aid. A spring dynamometer, a lever gauge, an air cylinder, with an Ashcroft steam gauge, or a test by the angle of friction ought to be adopted. We believe a cylinder, open at one end only, and having a piston connecting with the draw rod of an engine, might show, by the compression of the air confined in it, the resistance of a train. An Ashcroft gauge would be the measure of compression. This might answer to measure traction. Then again, every engine needs experimenting upon to show the variation of pressure in cylinder; an indicator of Gooch's or McNaught's plan is the proper test for this. A blast gauge is necessary, with a vacuum gauge or barometer, in all experiments upon draught of fire. A water meter would be useful in the feed pipe of an engine; a strong glass air chamber, for the force pump would show the real value of an air vessel, and many other applications would facilitate the acquisition of information upon practical points. A system of measuring fuel and the trial of established means for economy of fuel, oil, etc., should be adopted on one engine of every class upon great roads. The expenses of all arrangements should be kept separate, as being of more importance generally than all else.

Some of the southern roads, which for great roads, have a more full system of accounts for motive power department than those north of Philadelphia, can show, from their books, the con-

sumption of fuel, oil, waste, and repairs for each engine; know what it costs to keep a furnace whole, a boiler tight or a tire in running order; while these matters, important as they are and simple as they are, can scarcely be ascertained at the north. It is this test of experiment which, under but a partial application, has established the style of the freight engine of these great roads, and which, while operating far inferior roads, has made their running expenses less than on most of the northern roads.

American Railroad Journal.

Saturday, July 2, 1853.

Important Decision.--Construction of the General Railroad Law of Illinois.

The recent decision of Judge Morris, in the case of the Michigan Southern Railroad, vs. the Illinois Central railroad, appears to settle the construction of the general railroad law of that state. In the case referred to, the judge decided that the general railroad law of the state, *authorised railroad companies, organized under its provisions to do every act necessary to the construction of a railroad, with the exception of the condemnation of lands, and that when a company procured the right of way, their powers under the act were complete.* The Judge also decided, that the acts of the company organized as aforesaid could only be inquired into on a process in behalf of the state.

We presume that this case may be regarded as conclusive as to the right of the Mississippi and Atlantic railroad, to construct their railroad under their present organization. We learn that they have the right of way, for a greater part, if not the entire distance, and we further learn that it is the intention of this company to proceed forthwith in the work of construction; and as capitalists in this city stand ready to take up its stocks, we see no reason to doubt the early completion of this road, to the banks of ihe Mississippi.

Dry Steam.

Mon. Hypolite Uhry, the accomplished draughtsman and designer of Rogers, Ketchum & Grosvenor's works, has, in conjunction with Mr. Luttgens, of Paterson, invented a steam heater, or a "dry chamber," for the purpose of making surcharged steam, or anhydrous steam. The apparatus consists of a chamber filled with small vertical tubes, and placed in the upper part of the smoke-box, above the mouths of the boiler tubes. The steam from the boiler finds its way into this chamber, and surrounds the tubes which are open to convey the heat from the lower to the upper part of the smoke-box. By these means the inventors believe the steam receives an extra quantity of heat, which forms a reserve from which is supplied the usual loss by conduction, and which loss would otherwise produce condensation, and a consequent loss of pressure. They believe, also, that the particles of water carried off by priming will be thereby converted into steam. The apparatus is intended especially to prevent the great loss arising from condensation of steam in unprotected pipes and cylinders.

If it is true that the waste heat of the smoke-box is much *greater* than that of the steam as it leaves the boiler, this arrangement may effect an important saving. It must also be seen that it shall form no impediment to the draught.

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings in 1852.	Net Earnings in 1852.	Dividend, 1852.	Price of Shares.
Atlantic and St. Lawrence...	Maine.	150	1,417,587	3,000,000	4,649,392	200,233	.....	none	95
Androscoggin and Kennebec..	"	55	809,878	905,300	1,994,429	131,006	.....	none	30
Kennebec and Portland.....	"	72	876,741	800,000	2,180,000	133,338	.....	none	40
Port., Saco and Portsmouth..	"	51	1,355,500	123,884	1,459,384	208,669	.....	6	100
York and Cumberland,.....	"	20	227,981	291,200	In progres	15,694	.....	none	40
Boston, Concord and Montreal.	N. H.	93	1,649,270	622,000	2,540,217	150,538	79,659	none	53½
Concord	"	35	1,485,000	none.	1,485,000	305,805	141,836	10	108
Cheshire	"	54	2,078,625	720,900	3,002,094	287,768	55,266	5	....
Northern	"	82	3,016,634	.....	.....	328,782	163,075	5	58
Manchester and Lawrence....	"	24	717,543	.....	.....	.....	.....	6½	99
Nashua and Lowell.....	"	15	600,000	none.	651,214	132,545	51,513	8	108
Portsmouth and Concord....	"	47	.....	.....	1,400,000	.....	.....	none	....
Sullivan.....	"	26	.....	.....	673,500	.....	.....	none	9
Connecticut and Passumpsic..	Vt.	61	1,097,600	550,000	1,745,516	.....	.....	none	46½
Rutland	"	120	2,435,328	1,964,588	.....	324,790	165,340	none	35
Vermont Central.....	"	117	8,500,000	3,500,000	12,000,000	.....	.....	....	17½
Vermont and Canada.....	"	47	1,500,000	.....	1,500,000	Leased to	the Vt. C	ent.	102½
Western Vermont.....	"	51	392,000	700,000	.....	Recently	opened.	none	....
Vermont Valley	"	24	.....	.....	.....	.....	.....	none	....
Boston and Lowell.....	Mass.	28	1,830,000	.....	1,995,249	388,108	130,881	7½	100
Boston and Maine.....	"	83	4,076,974	150,000	4,092,927	659,001	338,215	7	105
Boston and Providence.....	"	53	3,160,390	390,000	3,546,214	429,484	212,625	6	88½
Boston and Worcester.....	"	69	4,500,000	425,000	4,845,967	758,819	331,296	7	101½
Cape Cod branch.....	"	28	421,295	171,800	633,906	60,743	30,056	2½	40
Connecticut River.....	"	52	1,591,100	193,500	1,801,946	229,004	72,028	5	57½
Eastern.....	"	75	2,850,000	500,000	3,120,391	488,793	241,017	7½	95
Fall River.....	"	42	1,050,000	none.	1,050,000	229,445	99,589	8	107
Fitchburg.....	"	66	3,540,000	100,000	3,633,673	574,574	232,787	6	99½
New Bedford and Taunton..	"	20	500,000	none.	520,475	164,230	43,950	7½	117
Norfolk County.....	"	26	547,015	819,743	1,245,927	67,251	23,415	none	67
Old Colony.....	"	45	1,964,070	282,300	2,293,534	322,213	101,510	none	86½
Taunton Branch.....	"	12	250,000	none.	307,136	137,406	24,399	8	....
Vermont and Massachusetts..	"	77	2,140,536	1,001,500	3,203,333	218,679	18,648	none	17½
Worcester and Nashua.....	"	45	1,134,000	171,210	1,321,945	162,109	66,900	4½	60
Western	"	155	5,150,000	5,319,520	9,953,759	1,339,873	682,195	6½	99½
Stonington.....	R. I.	50	.....	.....	.....	.....	.....	....	50½
Providence and Worcester...	"	40	1,457,500	300,000	1,731,498	253,690	139,514	6	....
Canal.....	Conn.	45	.....	.....	.....	.....	.....	10	....
Hartford and New Haven....	"	62	3,000,000	472,000	.....	600,408	332,223	none	124
Housatonic.....	"	110	.....	.....	2,500,000	329,041	168,902	none	....
Hartford, Prov. and Fishkill..	"	50	.....	.....	In progres	.....	.....	none	....
New London, Wil. and Palmer	"	66	558,861	800,000	1,511,111	114,410	.....	....	....
New York and New Haven...	"	61	2,992,450	1,641,000	4,825,937	814,714	443,993	7	108
Naugatuck	"	62	926,000	440,000	.....	.....	.....	....	....
New London and New Haven.	"	55	750,500	650,000	1,380,610	Recently	opened.	none	45
Norwich and Worcester.....	"	54	2,121,110	701,600	2,596,488	267,561	116,965	4½	56
Albany and Schenectady.....	N. Y.	17	1,000,000	685,301	1,774,584	296,112	164,448	8	145
Buffalo and New York City..	"	91	900,000	1,550,000	2,550,500	Recently	opened.	none	85
Buffalo, Corning and N. York.	"	132	.....	.....	In progres	.....	.....	none	65
Buffalo and Rockester.....	"	76	1,825,000	184,903	2,415,014	619,976	415,323	10	182
Buffalo and State Line.....	"	69	879,636	872,000	1,921,270	Recently	opened.	....	130
Canandaigua and Niagara F..	"	50	.....	.....	In progres	.....	.....	....	....
Canandaigua and Elmira.....	"	47	425,509	582,400	987,627	76,760	39,360	none	68
Cayuga and Susquehanna....	"	35	687,000	400,000	1,070,786	74,241	23,496	none	....
Erie, (New York and Erie)...	"	464	9,612,995	24,003,865	31,301,806	3,537,766	1,691,623	7	80½
Hudson River.....	"	144	3,740,515	7,046,395	10,527,654	1,063,659	338,783	none	72½
Harlem	"	130	4,725,250	977,463	6,102,935	681,445	324,494	5	65½
Long Island.....	"	95	1,875,148	516,246	2,446,391	205,068	44,070	none	36
Ogdensburgh (Northern).....	"	118	1,578,311	2,780,760	4,933,029	435,845	176,123	none	42½
Oswego and Syracuse.....	"	35	350,000	201,500	607,803	90,616	43,609	4	70
Rochester and Syracuse.....	"	184	5,132,990	700,123	6,016,778	988,366	549,824	8	154
Rutland and Washington.....	"	60	850,000	400,000	1,250,000	Recently	opened.	....	....
Saratoga and Washington....	"	41	899,800	940,000	1,832,945	173,545	135,017	none	30
Syracuse and Utica.....	"	53	2,400,000	126,000	2,661,477	616,918	376,025	10	182
Troy and Rutland.....	"	32	237,690	100,000	329,577	Recently	opened.	....	33
Troy and Boston.....	"	39	430,936	700,000	1,043,357	Recently	opened.	none	....
Utica and Schenectady.....	"	78	4,124,000	none.	4,093,273	1,029,774	724,770	10	195
Watertown and Rome.....	"	96	1,011,940	650,000	1,693,711	225,152	116,706	8	109
Camden and Amboy.....	N. J.	65	1,500,000	.....	4,327,400	1,388,385	478,413	10	150
Morris and Essex.....	"	45	1,022,420	128,000	1,220,325	140,154	80,351	4	....
New Jersey.....	"	31	2,197,840	476,000	3,245,720	603,942	316,259	10	148
New Jersey Central.....	"	63	986,106	1,500,000	2,379,880	260,899	124,740	3½	....
Cumberland Valley.....	Penn.	56	1,184,500	13,000	1,265,143	118,617	76,890	5	....
Erie and North East.....	"	20	600,000	.....	750,000	Recently	opened.	....	125
Harrisburgh and Lancaster...	"	36	783,950	688,051	1,609,494	200,249	106,932	8	....
Philadelphia and Reading....	"	95	6,656,332	10,427,800	17,141,987	2,480,626	1,251,987	7	93¼

Railway Share List,

Compiled from the latest returns—corrected every Weduesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings in 1852.	Net earnings in 1852.	Dividend, 1852.	Price of shares.
Philad., Wilmington and Balt.	Penn.	98	3,850,000	2,403,276	6,813,839	667,785	383,501	5	71
Pennsylvania Central	"	250	9,768,153	5,000,000	15,600,000	1,943,827	617,625	....	100
Philadelphia and Trenton	"	30	....	....	....	....	....	....	....
Pennsylvania Coal Co	"	47	....	....	....	....	....	....	....
Baltimore and Ohio	Md.	381	9,188,300	9,827,123	19,542,307	1,325,563	615,384	7	71
Washington branch	"	38	1,650,000	....	1,650,000	348,622	216,237	8	....
Baltimore and Susquehanna	"	57	....	....	....	413,673	152,536	....	42
Alexandria and Orange	Va.	65	....	....	In prog.	....	....	....	....
Manassas Gap	"	27	....	....	In prog.	....	....	....	....
Petersburgh	"	64	....	....	....	....	....	....	....
Richmond and Danville	"	73	1,372,324	200,000	In prog.	....	....	....	....
Richmond and Petersburgh	"	22	....	....	....	....	....	....	....
Rich., Fred and Potomac	"	76	....	....	....	....	....	....	100
South Side	"	62	1,328,722	800,000	In prog.	....	....	....	....
Virginia Central	"	107	1,400,100	446,036	In prog.	176,485	74,902	none	....
Virginia and Tennessee	"	60	3,000,000	1,500,000	In prog.	....	....	none	....
Winchester and Potomac	"	32	180,000	120,000	416,532	89,776	....	12	....
Wilmington and Raleigh	N .C.	161	1,338,878	1,134,698	2,965,574	510,038	153,898	6	....
Charlotte and South Carolina.	S. C.	110	....	....	....	....	....	....	....
Greenville and Columbia	"	140	1,004,231	300,000	In prog.	....	....	....	....
South Carolina	"	242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Georgia Central	"	191	3,100,000	306,187	3,378,132	945,508	508,625	8	102
Georgia	"	211	4,000,000	1,214	....	934,424	456,468	7½	....
Macon and Western	"	101	1,214,283	168,000	1,596,283	296,584	153,697	9	109
Muscogee	"	71	....	....	In prog.	....	....	....	....
Wilmington and Manchester	"	....	....	....	"	....	....	....	....
Southwestern	"	50	586,887	150,000	743,525	129,395	71,535	8	....
Alabama and Tennessee River	Ala.	55	....	....	In prog.	....	....	....	....
Memphis and Charleston	"	93	776,259	400,000	In prog.	....	....	....	....
Mobile and Ohio	"	33	879,868	....	In prog.	....	....	....	....
Montgomery and West Point.	"	88	688,611	....	1,330,960	173,542	76,079	8	....
Southern	Miss.	60	....	....	....	....	....	....	....
East Tennessee and Georgia	Tenn.	80	835,000	541,000	In prog.	....	....	....	....
Nashville and Chattanooga	"	125	2,093,814	850,000	In prog.	....	....	....	....
Covington and Lexington	Ky.	....	1,430,000	900,000	In prog.	....	....	....	....
Frankfort and Lexington	"	28	....	....	....	87,421	44,250	....	75
Louisville and Frankfort	"	65	....	....	....	....	....	....	....
Maysville and Lexington	"	....	....	....	In prog.	....	....	....	....
Cleveland and Pittsburgh	Ohio.	100	1,239,454	1,371,000	2,963,756	194,429	123,306	6	103
Cleveland, Painesv. and Ash.	"	71	....	....	....	....	....	....	....
Cleveland and Columbus	"	135	3,027,000	408,200	3,655,000	777,793	483,483	12	132
Columbus, Piqua and Indiana.	"	....	....	....	In prog.	....	....	....	....
Columbus and Lake Erie	"	61	....	....	....	....	....	....	....
Cincinnati., Ham. and Dayton	"	60	1,694,000	906,000	2,600,000	321,793	200,967	....	115
Cincinnati and Marietta	"	....	....	....	In prog.	....	....	....	....
Dayton and Western	"	40	310,000	550,000	925,000	Recently	opened.	....	80
Dayton and Michigan	"	20	....	....	In prog.	....	....	....	....
Eaton and Hamilton	"	36	....	....	....	....	....	....	....
Greenville and Miami	"	31	....	....	....	....	....	....	....
Hillsboro	"	37	....	....	In prog.	....	....	....	....
Little Miami	"	84	2,370,784	....	2,634,157	526,746	314,670	10	120
Mansfield and Sandusky	"	....	900,000	1,000,000	1,855,000	....	....	....	....
Mad River	"	167	1,860,500	....	....	565,751	....	....	....
Ohio Cental	"	57	....	....	In prog.	....	....	....	....
Ohio and Mississippi	"	....	....	....	"	....	....	....	....
Ohio and Pennsylvania	"	187	1,750,700	2,450,000	....	Recently	opened.	....	....
Ohio and Indiana	"	....	....	....	In prog.	....	....	....	....
Scioto and Hocking Valley	"	....	....	....	"	....	....	....	....
Toledo, Norwalk and Clevel'd	"	87	552,000	800,000	1,317,140	Recently	opened.	....	150
Xenia and Columbus	"	54	1,092,137	119,500	1,257,714	237,506	135,363	15	....
Evansville and Illinois	Ind.	31	....	....	In prog.	....	....	....	....
Indiana Central	"	....	....	....	"	....	....	....	....
Indiana Northern	"	131	....	....	"	Recently	opened.	....	....
Indianapolis and Bellefontaine	"	83	....	....	"	....	....	....	....
Lawrenceburg and Ind	"	....	....	....	In prog.	....	....	....	75
Lafayette and Indianapolis	"	62	....	....	....	Recently	opened.	....	....
Madison and Indianapolis	"	88	1,650,000	750,000	2,400,000	516,414	268,075	10	99
Peru and Indianapolis	"	40	....	....	In prog.	....	....	....	....
Terre Haute and Indianapolis	"	72	632,387	663,100	1,353,019	106,593	71,446	4	108
Rock Island and Chicago	"	....	....	....	....	....	....	....	....
Chicago and Mississippi	"	....	....	....	....	....	....	....	....
Illinois Central	Ill.	....	....	....	....	....	....	....	136
Galena and Chicago	"	92	1,932,361	500,000	In prog.	472,109	....	....	125
Michigan Southern	Mich.	315	2,499.410	2,629,000	6,430,246	592,187	293,046	....	145
Michigan Central	"	282	4,000,000	4,067,396	8,614,193	....	....	8	117
Pacific	Miss.	....	....	....	....	....	....	....	....

Stock and Money Market.

The past has been a depressed week in Wall-street. The leading theme has been *Erie*. Notwithstanding the large decline in its stock, it is as weak at 80 as it was a fortnight since at 89. Holders appear to be no more satisfied with it at its lowest point than at its highest. Its value is considered to be entirely uncertain. Its market price for some time to come will depend more upon the position of parties operating in it, than upon any well grounded conviction of its real value. What that is, is a problem which can only be worked out by *time*. During its period of probation, it can only be regarded as a superlative fancy.

The general market has ruled low, owing in a measure to the season of the year—the *First* and *Fourth* of July: the first, dividend, and the latter a holiday, have tended to divert attention from other transactions. Operations in the street and at stock board are to some extent neglected for more pressing matters. Money may be said to be abundant, though there has been quite an active demand for a few days past. Many of our leading houses have been calling in their loans preparatory to the ordinary payments of the first of the month. As soon as this is passed, money must become very abundant. The payment of the numerous half yearly dividends must throw very large sums into circulation. As an evidence of the amount it will in this way be paid out in the 1st, we would state that the house of Winslow, Lanier & Co. alone pay out over 1,000,000 in dividends and interest on bonds, which will give some idea of the extent of their negotiations. Other private banking-houses pay out large sums in the same way.

The general tone of the market is healthy, although quiet. First class securities meet with a steady demand. There is a diposition to put off the weaker, or those about which little is known, till Fall, when a brisk demand is anticipated, both for the American and foreign market.

The amount of securities which will then come upon the market will be very large, much greater, it is believed by many, than will find an immediate sale. This is likely to be so, but it must not be inferred from this fact *alone* that we are overdoing the business of railroad construction, or that the securities offering are not good. Many of them may be of questionable character, as would be the case were the offerings only a quarter the anticipated amount. The schemes now upon the market, including such as will make their appearance during the next six months, will require at least $75,000,000. This is a large sum, but there is no doubt that three times this amount could be well and profitably expended in the immediate construction of railroads. It is not the *amount* of the expenditure that is to be feared, so much as whether our investments shall be *well made*. Here is the point of danger. That we are doing a great deal is no necessary proof that we are not doing it well. As before stated, we could profitably and safely increase our investments in railroads, provided we confine them to legitimate projects. Whether we shall be kept within the limit of safety depend mainly upon capitalists themselves.—Should they confine their operations to projects that are in a measure self-sustaining, and that have a remunerating business in prospect, our

whole system may be maintained in a healthy condition. It is so now. Most of our projects are and will be remunerating, and we see no reason to believe that public confidence can be sensibly shaken in them. An Erie catastrophe is a rare occurrence. It is only in New York that roads can be mangled with impunity, in the manner this has been. More than two years ago we warned the public against its management, and predicted the reverses that have overtaken it.

The following half-yearly dividends for July are announced by various companies:—

	per cent.
Madison and Indianapolis	5
Worcester and Nashua	2½
Toledo, Norwalk and Cleveland	5
South Carolina	4
Sixth Avenue	5
Ohio Central	4
Cleveland, Penn. and Ashtabula	5
Erie and North-East	4
Berkshire	1¾
Boston and Lowell	3
Boston and Maine	4
Boston and Providence	3
Boston and Worcester	3½
Cape Cod Branch	2
Cheshire (preferred)	2
Eastern	3
Eastern in N. Hampshire	3
Fall River	4
Fitchburg	3
Lex. and W. Camb. (preferred)	3
Man. and Lawrence	3½
Pittsfield and N. Adams	3
Rutland 6 per cent. (preferred)	3
Stoughton Branch	3½
Taunton Branch	4
Western	3½
Worcester and Nashua	2½
Providence and Worcester	3
New Bedford and Taunton	3½

The following is the report of sales at auction by S. Draper, on Saturday last:—

$50,000 Tennessee Coupon Fives	90 *a* 93¾
40,000 Pennsylvania Coupon Fives '77	99¾ *a* 100
23,000 Pacific Mail Steamship Stock	99
29,000 Portsmouth and Concord railroad, 1st Mortgage	72
2,500 Mansfield and Sandusky R.R., 10 p. cts.	100
3,250 Portland Township (Sand'ky city) 7s.	99
10 Shares Suffolk Bank	88
100 Shares Macon and Western R.R.	108¼
25 Shares American Express Co	136

The earnings of the Michigan Southern and Northern Indiana railroad companies for May were:

From passengers and mails	$83,557 50
From freight and miscellaneous	51,947 93
Total	$145,505 43

The gross earnings for *five* months ending 31st May were $453,861 27.

The earnings for *eleven* months, being from the time of opening the road to Chicago, have been $968,532 75.

The fiscal year closes on the 30th June, instant, and, from present indications, the total gross earnings for the year will exceed $1,100,000.

The offerings for Galena and Chicago Union Railroad Company Seven Per Cent. Mortgage Bonds opened on the 25th inst., at the office of Wadsworth & Sheldon, amounted to $641,000, at prices ranging from 92 to 98¼. No bids were accepted for less than 95.

The following are the terms of the Consolidation of Interests between the Toledo and Junction Roads:

1. The parties agree to consolidate, &c., upon the basis prescribed in the Charter of the T. N. & C. R. R. Co.

2. The parties agree to assume the line of the Port Clinton Railroad, and to construct the line of road from Sandusky, via Port Clinton, Perrysburgh, and Maumee, to Swanton, and the connection with the Michigan Southern Railroad.

3. The parties contemplate an extension from Fremont towards Fort Wayne, or in some other western or south-western direction; and they thereby promise to undertake such extension as early as the interests and resources of the Company will admit.

4. The parties will unite with the Mad River R. R. Co., in establishing and maintaining a railroad connection between Sandusky and Fremont, by Clyde.

5. The stock of the two Companies shall be equalized before consolidating, so as to make their respective stocks of equal value; and to that end, it is agreed that in consideration of the smaller cost per mile, and the present productiveness of the T. N. & C. R. R., there shall be allowed to the Stockholders of said Railroad, of Stock or Bonds, such reasonable allowance per mile, as will carry out this principle of equalization.

6. The Company agrees to establish and maintain Workshops, both at Norwalk and Sandusky.

7. The Consolidated Company to assume and guarantee the respective obligations of the Companies.

8. The Consolidation to take place on the 1st of Sept. next, until which time the net earnings of each are to be regarded as the property of such Company.

The consolidation will take place npon the 1st of Sept. next, if the details of the contract can be settled. Until that time, the Roads will be managed as at present, after which, or until the annual election, Messrs. LICHFIELD, LANE and BOALT, will act as an Executive Committee, over the consolidation interests.

The stock of the Toledo, Norwalk and Cleveland R. R. has reached to a high figure in consequence of its extraordinary receipts, and from the favorable terms of Consolidation with the Junction road. It is in demand at a premium of 50 per cent., and cannot be had at that. While its stock is so high, it is a matter of some surprise to us, that its bonds which are first mortgage, of which there is only a small issue should be selling so low, the last sales being at about 980 interest, while Michigan Southern Bonds, of the same character, are selling at from 104 to 105. There is no reason in which the Bonds of the Toledo should command a higher figure even than those of the Michigan Southern as the former are equally well secured, and have a longer time to run. They are undoubtedly a choice investment, and must go to a premium as soon as their real value becomes known.

The Safest Seat.

In these days of collisions, submersions and derailments generally, it is worth one's while to know where he can expect the greatest security in a railroad train. We expect that if any opinion should be given that the indicated car will be at once crowded beyond its capacity, but that result had better follow than that the safest car should go nearly or quite empty.

It is very well known that the car nearest the engine is exposed to the least *dust*, and that the *rear* car of a train is generally safer than the front car. The *safest* is probably *the last car but one*, in a train of more than two cars;—that is, there are *fewer* chances of accidents to this than any other.

If it is a way train at moderate speed, or any train, standing still, a collision is possible from another train in the rear; in which case the last car receives the first shock. Again, an engine and the front cars of a train will often go over a broken rail, or a cow, or stone, without derailment, while the last car, having nothing to draw it into the line of the train, is free to leave the track.—Next to the forward car, the rear car is probably the most unsafe in the train. The safest seat is probably near the centre of the last car but one, and in a very long train, in the centres of the last two or three cars next to the last.

Writing.

A clear and correct style of writing is of the greatest value to every clerk employed in the offices of *public corporations*. Those who can avail themselves of the instruction of MR. O. B. GOLDSMITH, 362 Broadway, New York, will find the best arranged rooms and the best facilities for improvement in the city.

His arrangements in this respect are more complete than are generally met with.

North Eastern Rail Road.

The Directors of the North Eastern rail road company, of South Carolina, have made their first annual report to March 1st. 1853, which presenis the following exhibit of the condition and prospects of that work.

Total shares subscribed 13.363 at $50	$668,150 00
Of which, have been paid in	29,463 00
Expenses paid during year ending March 1	$ 11,493 68

The Legislature have authorized a subscription, on the part of the State, of $220,000, subject to the condition of an additional individual subscription previous to July 1st. To secure this, from $75,000 to $100,000 are wanting.

The estimated cost of the road under present prices of materials is $1,500,000; or $14,500 per mile.

The officers of the present administration of the company are:

T. Pinckney Huger, *President and Chief Engineer.*

John Ravenel, E. Sebring, S. Mowry, W. W. Martin, D. L. McKay, and W. S. Boyd, *Directors.*

N. R. Middleton, *Treasurer.*

W. E. Martin, *Solicitor.*

For the Railroad Journal.

Cincinnati and Fort Wayne Railway.

At a meeting of the board of directors of this company held at the Burnet House in Cincinnati, on the 22d inst., a large number of proposals to construct the road were examined. The whole work, including iron, full stock of rolling machinery and depot buildings was let to a company of very wealthy men in Ohio, who take one million of dollars of the stock of the company on the contract. The portion of the road between Fort Wayne and Winchester to be ready for running of cars within one year, a large force to be placed upon the work between Rossville and Oxford immediately, and the whole to be prosecuted to completion at an early day. The route of this road is from Cincinnati through Hamilton, Oxford, Richmond and Winchester, to Fort Wayne, passing through a country unsurpassed in fertility of soil, and occupies the shortest line between its termini, besides touching all the towns, and furnishing the most direct route to this city for the business of several western roads with which it intersects.

Locomotive Trucks.

If there is any one condition more than another which a truck should fulfill, it should certainly be that of allowing an easy accommodation on curves. The first trucks made, had outside bearings, and the weight of the forward end of the engines rested upon broad flat seats, six feet apart, on either side of the truck. The rotation of the truck, when strik, ing a curve, being under these wide bearings, caused much friction between the rubbing surfaces, and tended to prevent the truck from turning as easily as it should, whereby there was some danger of derailment. With heavier engines the bearings were brought inside, but for the Erie, broad gauge these were considered as too wide, and the weight was placed directly upon or around the centre pintal. By bringing the resistance directly upon the axis of revolution, its leverage was destroyed.

The Erie road has eighteen or twenty long inside connected, ten wheel engines, built at Paterson. These had their steam chests between the cylinders and had direct action links to work the valves. The weight of the front part of the engine resting through the steam chest joint upon the truck was believed to affect the permanence of the cylinder joints, and the centre bearings of two or three engines were changed to side bearings. The truck spring was straddled by a rocker, such as is used by Hinkley, and there was a square rib on the top of the rocker, which was enclosed in a groove of corresponding shape, on the under side of the engine frame. As this rib fitted with but little side play, the truck was in fact confined so as to prevent any rotation, and the engine became a rigid carriage of twenty-three feet in length between extreme centres.

One of these engines, No. 75, in running around the curve east of the Neversink bridge, one mile from Port Jervis, ran off the track, and after running a few rods on the bridge, went over between thirty and forty feet and struck, bottom side up upon the ground below. Two men were killed, and one, the engineer, saved himself by jumping 25 feet. The point at which the engine left the track, was just at the end of a curve of some 1000 feet radius, and was up grade in the direction of the progress of the engine. The engine was not probably going very fast as the grade was up, the train was heavy, and there was also another train just ahead. The engine went over from the bridge on the side corresponding with the outer rail of the curve just past; two or three cars also went over, but on the opposite side of the bridge, and three or four cars which were off the rails, but which stopped on the bridge, stood also on the inner side of the curve.

We see no necessity for making any projection upon the upper side of a spring rocker, as the spring is amply confined without it.

In speaking of this accident, it might be as well to say that had a square timber been bolted on each side of the bridge, the train would not have gone over upon the ground. There was only a light railing upon this bridge.

The truck must "track" rightly, that is its longitudinal axis must lie directly under the longitudinal axis of the engine. The inner hubs of the wheels may not be squared up of the same length, and should therefore be measured after drawing on, by which the position of the bearings if equidistant from the centre, will be known. Adjustable centre plates are generally found to give trouble, and the best plan is probably to use care in measuring for the centre at the first. If a truck or a pair of drivers do not track right, the flange of one or the other wheel will be worn thin, and the engine will have a tendency to leave the rails. A truck running forward much of the time, will work best if the centre is carried *forward* of the true centre of the truck, so that the forward wheels shall control the rear wheels. The distance forward need not exceed one-half or three-fourths of an inch. A truck is usually made of equal-sized wheels, but this is not essential.

Rogers has used one pair of 33 inch, and one pair of 36 inch wheels in the same truck frame. The allowance for lateral play between the flanges and rails is from five-eighths to three-fourths of an inch on nearly all flanged wheels, while a little play is sometimes allowed in the boxes of the journals.

Trial of Locomotives.

We find in the *Tribune* of Saturday, June 18th, an account of a trial made recently with two of the New York and Erie engines, upon the Susquehanna division of that road. The engines were as follows:

No. 86. 17 in. cylinder, 20 in. stroke, 5 feet drivers, six connected drivers and truck; built by Rogers, Ketchum, and Grosvenor; weight 65,175 lbs.; weight on drivers 47,000 pounds.

No. 117. 18 inch cylinder, 20 inch stroke, five feet drivers, four connected drivers and truck; built at the Taunton Locomotive Manufacturing Company's Works; weight 60,344 lbs., of which 40,000 lbs. were on drivers.

The train was of 76 eight wheeled cars, 75 of which were loaded with lumber, containing over 650,000 feet. Length of train, 2,003 feet; whole weight of cars and load, 1169 tons 544 lbs. Date of experiment, June 14th. No. 117, with this load from Corning to Elmira, 17,61 miles, was in motion 1 hour 21 min. From Waverly to Owego, 19.1 miles, two hours 24 min.

No. 86 with the same load, from Elmira to Waverly, 17.48 miles, 1 hour 3 minutes forty-two seconds.

June 15th, engine 86, with above train, started 1500 feet from a curve of 600 feet radius which was up grade 10 feet per mile. When the engine reached the curve, 64 revolutions per minute were made, curve 900 feet long, time of passing through curve, 1 min. 1 sec.

Engine 117, with same load at same place:—when engine reached curve the speed was 65 revolutions per minute; time through the curve, (900 feet,) 58 seconds.

Third Experiment, made June 15th, 1853, at Owego. Same train as above with the addition of 43 four wheel cars, loaded with coal. Whole weight of cars, load, engine and tender—No. 117—1571 tons, 540 lbs. After deducting cars, engine and tender, the load was 1028 tons; length of train 2616 feet.

No. 117, after running 700 feet entered upon and completed one mile in 5 minutes, second mile in 6 minutes 9 seconds; whole distance being of 5 feet grade per mile. Train stopped upon two curves with an intervening tangent of 400 feet in length. On starting, and after running one minute, the speed was four miles per hour, at the end of the second minute five and a half miles per hour.

Returned with No. 86. First mile in four minutes forty seconds; second mile 5 minutes 25 seconds.

Fourth Experiment, June 16th. Engine 86, with 76 cars named in first experiment, and also seventy-two four wheel cars loaded with coal, or a gross weight of train and engine of 1823 tons 540 lbs., or a load after deducting engine, tender and cars, of 1193 tons 746 tons. First 2000 feet run in 5 minutes 35 seconds, and the next mile in 7 minutes 55 seconds. Engine 117 on returning with same load, ran the first 1500 feet in 3 minutes 55 seconds, next mile in 6 minutes 23 seconds, second mile in six minutes 12 seconds. Hauled train around 2½ degree curve at Owego.

It was stated that the trials were made with a view of testing the capacity of the *road*. If this had been the object, engines 57, 88 or 89, would have been the proper subjects for trial. The relative tractive power derived from steam in cylinder with a pressure of 100 lbs per square inch on piston, is as follows for each of the engines:

No. 86—Rogers, Ketchum and Grosvenor	9633 lbs.
No. 117—Taunton Locomotive Manufacturing Co	10800 "
No. 57—M. W. Baldwin	17112 "
No. 88—Ross Winans	18470 "

The weight of the engines is as follows:

No.	86	10 wheels, six connected		32½	tons.
No.	117	8 " four "		30	"
No.	57	8 " all "		37	"
No.	88	8 " "	"	28	"

of 2,000 lbs. each.

If the object was to test the power of the two engines, 86 and 117, we do not regard the trial as fair, since the same train was not hauled the same way over the same road, except upon the curve in the second experiment. Engine 117 was designed for greater power than 86, in the ratio of 1 1-8 to 1. The engine 117, besides having 18 inch cylinder, had a separate cut off valve, 857 2-10 square feet of tube surface, 90 square feet of fire-box surface, and 16 1-6 square feet of grate.

Engine 86 had a link motion; 923 3-10 square feet of tube surface, 67 57-100 square feet of fire box surface, and 13 3-10 square feet of grate. The extra weight of the No. 86 was not the weight of any parts necessary to increase the tractive power; it was merely the weight of an additional pair of wheels, axles, springs, boxes, crank pins and connecting rods, which could just as well have been taken from the engine, except for the fact that they distributed the weight upon more points and with less injury to the track. The simple fact of greater adhesion could not benefit the No. 86, since the No. 117 must have had *sufficient* adhesion for her cylinder capacity, which was greater than that of the 86. Had there been any want of adhesion the 117 would have been delayed by slipping the drivers.

The pressure in the boiler should always be noted in any trials of locomotives, since the element of tractive force, or steam pressure is the basis of the whole expression of the power of a locomotive. The adoption of weight in the estimation of practical performance cannot lead to any correct or satisfactory result, and for this reason should be rejected in the outset, except so far as to see that it is not inferior, (a rare case) to the tractive pressure. This introduction of an irrelative element

at the Lowell trial in 1851 led to some doubtful results.

This trial, taken upon the whole, can prove nothing of importance. The capacity of the road to carry unnecessarily large loads may exceed that of narrow roads, *provided* the resistances are less, which is not believed to be the case. The power of the engines is by no means as great as of some which are in use on narrow roads; the particular engines tried not having half, or much more than half the tractive power of engines now running on the Baltimore and Ohio road. We do not believe there is one engine upon the Erie road, leaving out Winans', which can draw 504 tons two and a-half miles, up a grade of 82 feet per mile, at a speed of 10½ miles per hour. See Railroad Journal of June 18, p. 391.

We will conclude by quoting from the Railroad Journal of Sept. 11, 1852, p. 578.

A LARGE TRAIN.

The Schuylkill Haven *Miscellany* mentions a train of 211 *loaded* cars, brought over the Mine Hill and Schuylkill Haven railroad, some days ago by the locomotive No. 10. The coal weighed 975 1-20 tons, this added to the weight of cars—515 8-20 tons—makes a total weight of 1490 9-20 tons at one draught; the heaviest ever hauled over the road.

The tons in the coal trade are of 2240 lbs. which makes 1490 9-20 equal to upwards of 1669 tons of two thousand pounds,—2,000 lbs. being the standard of a ton adopted by most other roads.

Journal of Railroad Law.

INJUNCTIONS AGAINST RAILROADS.

He who would define the limits of the power of Courts of Chancery in regard to issuing injunctions will find them wrapt in such "glorious uncertainty" as to recall the oft-quoted lines of the poet in regard to the locality of the North.

"Where is the North? At York, 'tis on the Tweed and there
At Nova Zembla,—or the Lord knows where."

In truth, the most learned jurists have confessed that the equity power of issuing injunctions is one which cannot be accurately defined—inasmuch as it must be modified by exigencies which it is impossible to foresee.

The two following important cases, however, serve to illustrate the principles by which Courts are guided in relation to this subject.

The decision first cited is that of Judge Morris, of the 7th Judicial Circuit of Illinois.

COOK COUNTY CIRCUIT COURT.

Northern Indiana and Chicago Railroad Company vs. The Illinois Central Railroad Company.

This cause comes before me on bill of complaint, answer, and affidavit, on both sides, and a motion is now made for an injunction against the defendants to restrain them from running their cars, or permitting any other company to run cars across the complainant's railroad, founded upon this state of facts, to wit: That the complainant constructed its road, and thereafter the defendants located and constructed their track, running it across that of the complainant's on the same level, cutting the complainant's track and putting down the so-called crossing frogs without the assent of the complainants and against its repeated protest.

In the defendant's charter (11th section,) it is declared, that if the parties cannot agree upon the amount of damage for the right of way across such track, and the points and manner of crossing, the same shall be submitted to three commissioners—one to be chosen by each party, and the two to select the third; and if they cannot agree upon such third man, then the Judge of the District Court of the United States for this District shall select the same—the decision of this Board to be final. The complainants offered to negotiate with the defendants and settle said matter, or select commissioners in pursuance of the section of law aforesaid, which proposition the defendants refused, and took forcible possession and constructed their track across the complainant's track as aforesaid.

The bill alleges that complainant became a body corporate prior to the 2d December, 1850, in the manner prescribed by the act for a general system of Railroad Incorporations, approved 5th November, 1849, setting out the facts which made the complainant a corporation.

His Honor then proceeded to argue the question raised by defendants as to whether or not the plaintiffs were a duly organized Corporation, and duly authorized to purchase lands.

Deciding these points affirmatively, he proceeded as follows:

But again, the law is well settled that if there has been user of a corporate franchise, by an association of persons, their existence as a corporation can only be inquired into by direct proceedings on behalf of the State, and I so stated the law to be when the question was raised by the answer and argument. On this point see Saund. N.Y.R. 625; 6 Ired. N. C. R. 476; 8 Mass. R. 151; 10 Ala. R. 82.

Again, the defendants insist no injunction can properly be granted in this case till the plaintiff first establish its right or title at law.

I admit that such is the rule laid down in many cases, and in many cases it is not only proper but absolutely necessary. But this rule like all others, has its exceptions, as I will show presently. Justice Story, in his 2d vol. Equity Juris. § 959, b., says: "It may be remarked in conclusion upon the subject of special injunctions, that Courts of Equity constantly decline to lay down any rule which shall limit their power and discretion as to the particular cases in which such injunctions shall be granted or not: and there is wisdom in this course, for it is impossible to forsee all the exigencies of society which may require their aid and assistance to protect right, or redress wrong."

It is, says he, "mainly indispensable for the purposes of social justice in a great variety of cases, and therefore should be fostered and upheld by a steady confidence."

I mention this authority merely to show the rules when no other appropriate remedy existed to protect a right or redress wrong.

But in the case in 6 Vesey Jr. 706–7, Lord Elden examined this very question, and shows many cases of exception to the rule that you must proceed at law in doubtful titles even.

Injunction was granted to a party *in possession under color* of title. In another, where the title was so doubtful that the judge differed in opinion as to who had the title.

This authority is directly in point. The plaintiff here was in possession, not only claiming title, but in fact had the indisputable right to the possession. He had the possession, and the right of possession, and the right of property—a complete title.

6 Paige 88—the case of the Mohawk Railroad Company *vs.* Archer, is another case directly in point of the jurisdiction and right of issuing the injunction in this case, where it is said that "this Court has an undoubted jurisdiction to interfere by injunction where public officers are proceeding illegally and improperly under a claim of right, or where the exercise of such a jurisdiction is necessary to prevent a multiplicity of suits at law." Again, "the prediction, as the act complained of is not a mere trespass, but an attempt to exercise a continued right of passing across and through the plaintiff's property."

This is the precise statement of the case now before me. Here I might stop on this point of the case, but I have a few more cases to the same point.

3d Railway cases, 355—North Union Railroad Co. *vs.* the Poulton and P. Railway Co. It is said, "but it is now clearly settled, that in cases of trespass under color of title, when the mischief apprehended is irreparable, the jurisdiction of the Court exists;" and I incline strongly to the opinion that whether the mischief be irreparable or not, this Court ought by decree at least, if not upon motion, to extend and apply the jurisdiction of preventive justice to all cases of trespass in which (by analogy to cases of specific performance) damages would be an inadequate and uncertain remedy, and the protection of a right in specie, the only mode of doing complete justice between the parties. This is the case here. The defendants by argument say they entered under color of title by a deed from the same grantors who first conveyed to Mr. Judd the right of way. Does any one doubt that time is of the utmost importance to Railroad Companies—that the complainants have to slacken their speed in approaching the crossing in question some twenty times a day and sometimes come to a full stop to get by safely. That this state of facts is to grow worse by reason of additional trains that the defendants are to put on, that dollars and cents can pay for the loss of time, the dread and fear of collision in approaching the crossing, the anxiety of the owners of this property, the trouble, the vexation, the danger of life, limb, and destruction of property, all at stake upon the caprice, whim, or malice of the Engineers or Conductors of the trains running with feelings of hostile opposition to each other, trying to see which shall get by first—what damages can be given in such a case to be called adequate or commensurate with the injury complained of. Eighteen souls have been hurried from this world before their God by reason of this trespass and unlawful appropriation of property; and it is said damages can be given commensurate with the injury under the plausible excuse that it was the result of negligence.

There is no action at law that can reach the damages or prevent the mischiefs of the defendants passing twenty times or more each day through and over the complainant's fixtures to the *permanent and continued injury* of the complainant who it is in every sense of the term without adequate relief except by the application of the remedial power of the writ of injunction. [See 1 Vesey 188; 2d Dow, 519; 1 Baldwin, 226, 238 and 230.

These show clearly that it is the duty of the Court to *restrain* Corporations and keep them within their powers.

The General Railroad Act of this State, and the 11th section of defendants' own charter, directs what they shall do in order to cross another railroad track. This the defendants refused to do—but have entered by force, and wantonly, willfully and deliberately taken posession of the complainant's property, in direct violation of their charter.

But again the defendants object to the proceeding, because they say that the complainant has a complete remedy at law, 1st, by mandamus; 2d, by action of ejectment; 3d, by action on the case; and 4th, by action of trespass—q. f.

Now it is well settled that the proceedings by mandamus only lay when the party was without any other remedy. For it is said that courts will not exercise that extraordinary remedy in any case where there is any specific remedy, adequate to enforce the right. So if it be true as urged by the defendants, that the complainant hath three other remedies at law, then the complainant hath not that by mandamus. Yet all these actions named yield limited and partial relief only, and fall far short of giving to the complainant suffici-

cient and adequate relief in the premises, and are wholly insufficient for the ends of justice.

Defendants also object that the complainants have never offered to negotiate with them touching the crossing. This may or may not be true—let us see. John B. Jervis, the Chief Engineer of the complainants, in his letter to Col. Mason, the Chief Engineer of the defendants, under date of April 12, 1852, nearly one month before the committing the trespass, alleged that he Mr. Jarvis, would " be happy to interchange views and enter into any negotiations that are proper to put this plan of crossing on a satisfactory and fair basis. In the maintime William Jervis (Resident Engineer) will confer with you as to tne plan and mode of crossing."

But again the complainant, by Resolutions of its boarp, declared their willingness to negotiate with the defendants, and forbid them to cross its track until it was settled by argument, or according to the manner prescribed by the defendant's charter, or the general laws of Illinois.

The defendants say they will suffer much greater loss by the issuing of the injunction, than that which the complainant has or can suffer; that it will stop their works for six months at a loss of more than $600 a day, deprive them of large rents, &c., derived from the Michigan Central road, and that Courts of Eq uity will not grant injunctions in such cases.

In the case of Greenholghvs. the Manchester, &c. 1 R. R. cases 118, in reply to such arguments the Chancellor says, " thre however is no answer, and those companies should be aware that there is not, if there be a clear case against them."

The defendants say that the complainant has laid by a year without taking steps to stop them, and therefore ought to issue.

This and the proceding objection might be and are good reasons for the withholding of the injunction, if the defendants or their attorneys will stipulate that they will, without unnecesary delay, settle the matter with the complainant by agreement, or by selecting commissioners in pursuance of the 11th section of defendants charter to determine the compensation to the plaintiff, and the point and manner of crossing the complainants' track, and in the meantime to give the complainant the full use of its track, the defendants to keep their trains out of the way, or something to that effect, until these matters are settled as pointed out by the defendants' charter. It is clear that the complainant is without any safe and adequate remefly in the premises, unless it is done in the case before me by injunction.

The defendanl's solicitors having produced to me the stimulations herein annexed, which being satisfactory, the motion for an injunction is taken under advisement.

COOK COUNTY CIRCUIT COURT.

Northern Indiana and Chicago Railroad Compady vs. Illinois Central Railroad Company—in Chancery.

The motion for an injunction in the above entitled cause having been heard by Hon. B. S. Morris, Judge of the Seventh Judicial Circuit, at the suggestion of the Court, the proceedings in said cause are suspended until the further order of said Judge, upon the defendants entering into the following stipulations:

1st. That said defendants will forthwith and without unnecessary delay, take all such lawful proceedings as may be necessary to ascertain the compensation to be made to such complainants, and the points and manner in which said defendants shall be allowed to cross the track of the said complainants at the point named in the bill of complaint filed herein, in pursuance of section eleven of the act incorporating said defendants; and without delay prosecute such proceedings to a final conclusion according to the provisions of said act; and that upon the determination of the said commissioners, the said defendants will forthwith and without unnecessary delay comply with any lawful decision and award of said commissioners.

2d. That until such final determination, or the further order of said Judge, trains of cars passing both ways upon the road of the said defendant shall keep out of the way of trains passing upon the Northern Indiana and Chargo Railroad, at the crossing mentioned in the bill, so that the trains passing upon the Northern Indiana and Chicargo Railroad shall at all times have the road and the precedence in crossing, which is to be exercised without any unreasonable delay, and that each train passing upon the Illinois Central Road shall come in full stop at said crossing, and send the conductor or fireman on the track, so as to see that the same is clear before proceeding. This regulation to be in force on and after the 25th day of June, A. D. 1853.

All of which said the defendants hereby stipulate to do and perform. Dated this 18th of June, A. D. 1853.

M. BRAYMAN, Solicitor Illonois Central Railroad Co.

BLACKWELL & CECLWITH, of Consul.

Explosions.

One of the largest boilers on the Erie road has recently exploded. We are not aware that any cause has been publicly given as the one leading to the explosion. It is a doubt in the minds of most engineers if a boiler ever explodes in consequence of a steady or an uniformly increasing pressure. It is always referred to the over heating of some part of the boiler, and the sudden injection of cold water thereon. The question is, what result is produced by the water? Is it instantly converted into steam of great pressure? Will it at first take the spheroidal form and lie quiescent upon the furnace, or flues, and not be converted into steam until more water has been received, the temperature of the plates lowered, and until the consequent formation of steam has become instantaneous and overwhelming; or is the water decomposed upon the plates, and the gases liberated and exploded by heat or electricity? These may form subjects for ingenious discussion, but whatever theory is advanced it must be based upon the facts of overheating the iron in the first place, and therefore to not heat the iron will prevent explosions. Some marine boilers have such a form that the steam cannot rise from all the parts and give the water a chance for free access thereto, consequently a plate may be overheated, So the detachment of scale may let the water suddenly upon an overheated plate. But these cases are not at all common to locomotive boilers, as the form of locomotive boilers allows free discharge of steam from the heating surfaces and free access of water.

So whatever may be the chemical process of generation, decomposition, or whatever *theory* may be formed, it is true that a want of water is the first cause of explosions, and this is a mere, practical deficiency which can at any time (before overheating) be corrected. It is known that when an engine is working, the true level of the water is not known by the gauge cocks and this was especially true in the case of the "No 58," (the one which exploded) as this had a dome boiler, and took its steam from directly over the fire-box. Another point was that the engine was just setting out upon a heavy grade and that the engineer would naturally wish to pump as little water as possible into the boiler. It is impossible now to know what amount of water was in the boiler, but the inference is that at the moment of the explosion there was a deficiency. Had the water, when the engine was standing, been a little below the crown sheet of the furnace, the putting of the engine in motion would throw the water over the sheet; so too, if the water was just below the crown sheet after starting it would have covered it on reaching the grade. The use of a safety plug is believed to tend to prevent explosions, although the fusible filling of the plug may become porous or filled with sediment or infusible deposits, after long use.

New Orleans, Jackson and Gt. Northern Railroad Company.

The first annual report of this company, presented May 5, 1853, gives the following exhibit of its condition and prospects.

The charter of the company, approved 22d April, 1853, and granted by the legislature under the amended constitution of the state of Louisiana, fixes its capital at $8,000,000, with exemption from taxation, perpetual existence, and other important and liberal privileges.

The available amount of city and county subscriptions reach $3,250,000, besides a subscription on the part of the state of $1,600,000, making the total subscribed stock $4,850,000.

Ten squares of ground have been purchased for the site of the main depot in New Orleans. The price paid is a little less than $59,000.

The Canton and Jackson, and the Canton, Aberdeen and Tuscumbia railroads, have by acts of the legislature of the state of Mississippi been transferred to this company, which acts have received the concurrence of the stockholders of those roads.

The city subscription of $2,000,000 by a real estate tax of one-half of one per cent per annum, for six years, has been anticipated by the directors, by an issue of $1,800,000 of bonds, bearing interest at 8 per cent, the payment of which has been pledged upon the collection of the city subscription.

The charter, besides fixing the capital at $8,000,000, authorizes the directors to borrow a like sum on mortgage of the property of the company, and to provide for converting bonds into stock in five years.

The president of the board recommends the issue of six million dollars of bonds, payable 30 years hence, with seven per cent interest, with the privlege to the holders of converting half the amounts into stock, under the limitations of the charter.—This plan is proposed to enable the company to construct their road to the Tennessee River.

The estimated annual income of $3,000,000 upon the completion of the road, is confidently anticipated, and a belief is expressed that this estimate was rather under-rated.

The receipts on stock subscriptions up to March 31, 1853, have been	$198,260 25
Bonds issued	143,548 33
	$341,808 58
Expenditures to same date	254,424 33
Leaving balance on hand	$87,384 25

ROUTE.

The line, beginning at Clairborne street, crosses Bayou LaBranch, half a mile from Lake Pontchartrain, crosses the South Pass Manchac at foot of Lake Maurepas, on the 37th mile, and reaches the pine woods 46 miles from New Orleans.

It enters the State of Mississippi eighty-seven and one-third miles from New Orleans. The first thirteen miles of the Delta section offer facilities for the construction of a good railway. The

remaining thirty-three miles to the pine woods are of a more difficult character, the whole distance being subject to inundation from the Lake at high water. The plan of construction upon this part of the line has been fixed for "crib work," consisting of a bottom planking, upon which are laid long cross ties, eight feet apart; then longitudinal stringers, and finally, upon these, the usual cross ties of the superstructure. There will be 2,150 ft. of swamp piling on the sides of the Passes Manchac and Bayou LaBranche. The pile bridging will be 2,080 feet long over the South, and 790 ft. over the north pass Manchac. The estimated cost of the Louisiana division of road, 87⅓ miles, is $1,937,821, or $23,254 73 per mile.

Add ground for depots in New Orleans, and also cost of sidings, warehouses and workshops, &c., and the entire cost is $2,187,821.

The location in Mississippi commences at the Louisiana State line. It extends north up the valley of the Tanchipaho river, and from thence it runs to the southern portion of the dividing ridge, between the waters of the Pearl river and the Mississippi. The line, as located, passes entirly along this ridge to a point on the ridge near the county line of Copiah and Hinds, upon the road from Gallatin to the city of Jackson. From hence it is but twenty miles to Jackson, making the distance from the State line to Jackson ninety-six miles. The line from New Orleans to Jackson is but 7½ miles, or 5 per cent. longer than an air line. The estimate of cost from the State line to Jackson is $2,461.908 68, or $25,644 88 per mile. From Jackson to Canton, 23½ miles, the work is under contract. The estimated cost is $484,936, or $20,635 per mile.

By these estimates the total distance from New Orleans to Canton, 207 miles, will cost $5,134,666, or $24,825 per mile.

Plattsburgh and Montreal Railroad.

This company have made a second mortgage of $100,000 upon their road and fixtures, to the trustees of the first mortgage of $200,000 for the purpose of enabling them to dispose of their bonds to purchase additional motive power and freight cars, and to erect another extensive freight house and other buildings at Plattsburg. These bonds are made convertible into stock at any time before maturity, and are payable 15 years from January 1, 1853, with coupons attached, payable in the city of New York on the first days of January and July.

The recent exhibit of this company, made with reference to the sale of these bonds, presents the following facts:

POSITION OF LINE.

The road extends from Plattsburg on Lake Champlain, to the Canada line at Mooers, a distance of twenty-three and one-sixth miles. At the Province line, this road unites with the Montreal and New York railroad to Caughnawhaga, on the St. Lawrence, a distance of 29¼ miles. The whole line from Plattsburg to Caughnawaga, 52½ miles, is very favorable for high rates of speed, and for economical operation. The two roads are united under one management, contributing each to the general expense, and dividing the earnings in proportion to length of road.

The terminus on the St. Lawrence is opposite the head of Montreal Island, at Lachine, from whence a railroad of eight miles has been in operation to Montreal for several years.

The New York end of the road is substantially constructed on a road bed of favorable soil, except at a few points which have been well ballasted. The rails are 57 lbs. to the yard, laid upon eight ties for each length. The fencing is mostly completed and the stations erected. Large buildings are already erected at Plattsburg.

The equipment of the Plattsburg and Montreal line consists of three locomotives, 4 passenger and 40 freight cars. The equipment of the Canada end of the road is of about the same amount. Great additions will be necessary in the spring for increased equipment to accommodate the increased business which will seek the road.

FINANCIAL.

Capital stock as by charter	$500,000
Stock subscribed	201,432
Amount paid in	174,042
Funded debt	131,000
Floating debt	63,646

COST OF ROAD.

Entire cost, by Treasurer's statement.	$349,775 68
Being per mile, only	15,207 00

EARNINGS.

The lateness of the season at which the line was completed last year, being opened to Mooers only July 26th, and to Caughnawaga on the 20th September, and the incapacity of the line previous to the close of the travelling season, and the close of freight contracts upon opened lines, have made the earnings up to last February but $7,975.

CONNECTIONS, PROSPECTS, &c.

This line connects at Caughnawaga with the Lachine road and Montreal by ferry, while a bridge at the same place has been pronounced feasible at a moderate cost. At Montreal the connection will be made with the Atlantic and St. Lawrence road. The Grand Trunk Railway of Canada, will soon be completed to Lachine. A company is also formed for a railroad extending from Lachine up the Ottawa region. The rivers St. Lawrence and Ottawa are also of themselves able to furnish more business than this road can accommodate.

The line connects South by steamboats to Whitehall, from whence there is a continuous railroad line to Troy, Albany and New York, and also to Saratoga and Schenectady, and thence over the New York Central Railroad to Buffalo. At Plattsburgh a ferry also connects with Burlington, and from thence by Vermont Central and Rutland Railroads to Boston and to the East.

In addition a company is now formed to construct a railroad from Plattsburgh to Whitehall, which will complete an uninterrupted railroad line from Montreal to New York, and very soon from Quebec to New York, the whole being almost upon an air line, and after crossing the province line, will lie wholly in New York.

We believe the above must prove a productive road from its local traffic, and from the importance of the connections, it now forms. It traverses an excellent section of country, possessing all the elements of a lucrative business. Prospectively, it must form a link in one of the most important lines of road in the whole country. A railroad upon the west shore of lake Champlain, the building of which is no longer problematical, will form a direct route from New York to Montreal, very much shorter than any other, either in operation or in prospect. Between New York and the Canadas an immense trade and travel already exists, which is rapidly increasing. There is no work sustaining better relations to this business than the above.

Constitutionality of Municipal Subscriptions to Railroads.

The great railroad tax question was yesterday finally settled by the Supreme Court, in the case of the Police Jury of Algiers, use of the Opelousas railroad vs. the Executors of McDonogh, in which the constitutionality of the assessment came up for decision.

Chief Justice Slidell delivered the opinion of the Court. It was able and elaborate. He discussed and decided the question, in all its bearings, overlooking nothing of importance. On every point he showed that the law was, in itself, strictly constitutional, and that the proceedings had under it had been entirely legal. We do not deem it necessary to give an extended synopsis of the judgment of our tribunal of last resort. The mere announcement of the fact will be entirely sufficient.

Although we anticipated such a decision from the first—although we felt assured, all the time, that the railroad tax was absolutely constitutional and legal, and could not be broken—still we must confess to a very considerable degree of satisfaction at the decision—at the delivery of the final fiat, or, at least what amounts to it, that settles everything, and from which there is no appeal. An adverse decision would have been fraught with disastrous consequences—would have caused property to decline—would have been a drawback to the city, from which she would not have recovered in a decade. Everything depends upon the speedy construction of our two great railroads. The three millions and a half voted, was first wanted, for it could be soonest made available. Its loss would have embarrassed the roads and delayed operations; and embarrassment and delay, *at this time*, would be ruinous. Now, however, the coast is clear; the skies are undimmed by the smallest cloud; and the glorious promise of the future is so near that it is almost realized!—*N. O. Com. Bulletin.*

Jeffersonville Railroad; Important Arrangements.

We learn that the Lawrenceburgh and Jeffersonville railroad companies have just concluded an arrangement for the running of the Jeffersonville trains between Shelbyville and this city, on the Lawrenceburg road, so that in about two months, the cars will be in direct connection between this city and Louisville.

The connection also between the cities of Terre Haute and Lafayette with Louisville, will thus be complete by railroads. The line of the Lawrenceburgh road to Shelbyville is perfectly straight and of easy grades, and as the Jeffersonville Company is proceeding to relay their line from Shelbyville to Edinburg with a heavy rail, the time of running between this city and Louisville under this arrangement, will be *within a few minutes as short as it could be on an air line.*

This direct communication between the Wabash and this city (with all our railroad connections), and the city of Louisville, *without any delay or embarrassment*, as to transhipment or low water, at so early a day, will be hailed, and *ought to be celebrated, with pleasure.*

Louisville is a very important market for our produce, and for purchasing groceries, and the opening of a direct connection thus afforded should call out a gathering of Kentuckians and Hoosiers, which would fill every train between the Wabash and the Falls. What do you say, all concerned? Let the Press say so, South and West, and it will be done. We say, Aye!!

We congratulate both companies on the arrangement, which, while it will add largely to the early business of the Lawrenceburgh company, it affords the Jeffersonville company a terminus and connections, which are all that is needed to bring it up to first class.—*Ind. State Journal.*

Important Railroad Connections.

A meeting of the officers of the Columbus, Piqua, and Indiana R. R. Co., and the officers of the Marion and Mississinewa Valley R. R. Co., and the friends and projectors of the Railroad from Marion *via* Peru to Chicago, was held in Marion, Ind., on the 8th and 9th inst., at which the following important arrangements were made:—A permanent connection was entered into by which the M. and M. V. R. R. Co. agree to complete their road from Union to Marion at the earliest day possible, and the C. P. and Ind. R. R. Co. agree to furnish the rolling stock and to run said road for a term of years. The company from this place to Peru and the company from Peru to Chicago have been dissolved, and a new company from Marion to Chicago has been formed: the road of which is to be run in like manner by the C. P. and I. R. R. Company. This gives to the C. P. and I. R. R. Company the entire running control of the lines of Railroads from Columbus, Ohio, to Chicago, Ill. And all these arrangements have been made as preliminary steps to an entire consolidation of the stocks of all the roads from Columbus to Chicago. By this arrangement there will now exist but two companies between Union and Chicago; and the whole railroad interest between the cities of Columbus, in Ohio, and Chicago, Illinois, has become united as one man in one single enterprise. The whole of this line of roads is fixed on the "*Indiana gauge.*" In fact when this line of roads shall have been completed there will be one unbroken line of Railroads on the same gauge from New York city, *via* Philadelphia, Harrisburgh, Pittsburg, Columbus, Piqua, Union, Marion, etc., to Chicago. Along this entire line east of Columbus, we learn there are already very favorable connections made.—*Marion Journal.*

Virginia.

Orange and Alexandria Railroad.—We learn from the Alexandria *Gazette*, that at a meeting of the board of directors of the Orange and Alexandria railroad company, on Tuesday, T. C. Atkinson, Esq., was appointed chief engineer of the extension from Gordonsville to Lynchburg, and H. W. Vandegritt, Esq., retained as chief engineer of the "Western Section," extending from Culpepper, C. H., to Gordonsville, in connection with the general superintendency of the road. We congratulate the Alexandria company in being so fortunate as to secure the services of so thoroughly a competent engineer as Mr Atkinson has, in the many important positions he has held, always shown himself to be.

The extension of the Alexandria railroad from Gordonsville to Lynchburg, is a matter of the highest importance to Alexandria, and in the advantages of it Baltimore must participate. When completed, it will give a connection to the railroad that is to run from Lynchburg to Knoxville, Tenn., and thence to Memphis. The extension of the Washington railroad down to Alexandria will give to Baltimore the same connection, and thus open to the whole South-west a market in Baltimore, which will present advantages to them that they will be sure not to lose.

Louisville and Newport Railroad.

The Louisville *Courier* states that DeGraffe & Co. have taken a contract for the construction of this road, which is to be completed in eighteen months. By this route the entire distance between Louisville and Newport, on the Ohio River opposite Cincinnati, is 102 miles. For 29 miles of this distance the Louisville and Frankfort road is to be used. The following is a description of the route:

The line of the road leaves the Ohio river in Newport, at a point immediately opposite the Little Miami railroad Depot in Cincinnati, whence it proceeds about three miles back, crosses the Licking, and strikes upon Bank Lick Valley—an exceedingly picturesque and somewhat classic region. It then proceeds directly towards Louisville, coming within a short distance of the Ohio river again, at the great bend in Gallatin County. Passing not very far from Drennon Springs, it strikes the Louisville and Frankfort railroad at Smithfield, in Henry County, a point some three or four miles this side of Eminence. There the seventy-three miles end. By the time that distance is completed, it is designed to have the Louisville and Frankfort road straightened to Hobb's Station twelve miles from Louisville. From Hobb's down, the Louisville and Frankfort road is unexceptionably good. Should the straightening not be done by that time, the Louisville and Frankfort road can be used until it is finished.

New-York.

Schenectady and Troy Railroad.—At a meeting of the stockholders of the Schenectady and Troy railroad Co., held on the 6th ult., the following persons were elected directors for the ensuing year—Russell Sage, E. D. Morgan, D. Thomas Vail, Tho. Symonds, H. N. Lockwood, M. I. Townsend, W. F. Sage, Foster Bosworth, Gilbert Robertson, Jr., Henry Ingram, Jonathan Edwards, Hiram Smith and Harvey Mosher.

Rochester and Lake Ontario Railroad Company.—The following gentlemen were chosen directors of this company at the annual election of directors held on Saturday:—Azariah Boody, Roches.; Edward Whitehouse, New York; Joshua Eaton, Greece; Joel Rathbone, Albany; William Otis, Gates; R. S. Burrows, Albion; Wm. Kidd, Rochester; J. V. L. Pruyn, Albany; F. Gorton, Rochester; E. H. Holmes, Brockport; Rufus H. King, Albany; W. Colburn, Rochester; P. M. Bromley, Rochester.

Buffalo and New York City Railroad.—The following gentlemen were, on Monday, elected directors for the ensuing year—Messrs. R. H. Heywood, A. D. Patchin, L. H. Pratt, S. F. Pratt, John Wilkinson, George M. Lauman, J. G. Hoyt, Samuel Swain, Horace Hunt, John A. McElwain, George R. Babcock, and George B. Chase.

Railway Machinery.

A TREATISE on the Mechanical Engineering of Railways; embracing the Principles and Construction of Rolling and Fixed Plant, in all departments. Illustrated by a series of plates on a large scale, and by numerous engravings on wood, by Daniel Kinnear Clark, Engineer.

To be completed in about 24 parts, Imperial 4to., 62½ cents each.

The specimens of railway machinery, forming the subjects of the larger separate engravings, have been selected from machines approved by experience, each as the representative of a class, with the object of forming in connection with the wood cut illustrations distributed throughout the text, a complete and systematic body of construction. General views, and working sections are, in all cases given of the subjects of the plates, drawn to scales large enough to render the construction perfectly explicit. Written measurements are added to the sectional views, with great minuteness, and separate details in wood cuts accurately drawn on scales generally one-eight or one-sixteenth full size are given in the body of the work of such portions as are not sufficiently shown in the plates.

BLACKIE & SON, Glasgow, Edinburg and London, and 117 Fulton street, New York.

UNION WORKS,

North street, opposite the Railroad Depot,

BALTIMORE.

Poole & Hunt,

Manufacturers of Steam Engines and Mill Gearing, Machinists' Tools, and all kinds of heavy and light Machinery.

Also put up *Arrangements of Wrought Iron Pipes* for heating buildings and conveying steam or water.

Castings of every kind furnished at short notice.

Every exertion will be made to insure the satisfaction of customers.

Railroad Iron.

2000 Tons of Rails, weighing from 58 to 60 lbs. per yard of Favorite Patterns, now on hand in New York, For sale by W. F. WELD & CO.,

June 21, 1852. 42 Central Wharf, Boston.

LITTLE MIAMI AND COLUMBUS AND XENIA RAILROADS.—SUMMER ARRANGEMENT, to commence May 16, 1853. *Four Passenger Trains Daily, Sundays excepted.*

Trains run by Columbus time, which is seven minutes faster than Cincinnati time.

Until further notice, Passenger Trains will leave the depot on East Front, as follows:

Express Train at 6 a.m.
Accommodation Train at 7.30 a.m.
Hillsborough Train at 2.30 p.m.
Mail Train at 5 p.m.

For Linwood, Plainville, Milford, Loveland, Foster's, Deerfield, Morrow, Fort Ancient, Oregon, Corwin and Waynesville, Spring Valley, Xenia, Cedarville, Selma, South Charleston, London, West Jefferson, Columbus, Yellow Springs and Springfield.

Returning from Columbus—

Mail Train will leave at 4.05 a.m.
Express Train will leave at 1.30 p.m.
Accommodation Train will leave at 5.15 p.m.
Returning from Hillsborough at 7 a.m.
" from Springfield at 5 a.m.
" " at 5 p.m.

TRAINS WILL STOP AS FOLLOWS:

Express Train, 6 a.m. from Cincinnati at Loveland, Morrow, Xenia and London only; 1.30 p.m. from Columbus, at London, Xenia, Corwin, Morrow, Loveland and Plainville only.

Accommodation Train, 7.30 a.m., from Cincinnati, and 5.15 from Columbus, at Plainville, Milford, Miamiville, Loveland, Fosters, Deerfield, Morrow, Fort Ancient, Freeport, Corwin and Waynesville Spring Valley, Xenia, Cedarville, Selma, South Charleston, London and West Jefferson. Also on proper notice by flag or to conductor, at Linwood, Claysville, Florence and Alton.

Mail Train 4.5 a.m. from Columbus, and 5 p.m. from Cincinnati, at West Jefferson, London, South Charleston, Selma, Cedarville, Xenia, Spring Valley, Corwin and Waynesville, Freeport, Fort Ancient, Morrow, Deerfield, Foster's, Butterworth's Water Station, Loveland, Milford and Plainville. Also at Claysville, Florence and Alton, on notice.

Hillsborough Train at 7 a.m., from Hillsborough, and 2 p.m. from Cincinnati, at Lynchburgh, Westboro, Blanchester, Goshen, and Wilmington pike, Loveland, Polktown, Miamiville, Millford, Plainville and Linnwood. Also on notice at Flag stations.

Passengers for Hillsborough, Chillicothe, and intermediate points will take the 2.30 p.m. trains.

Passengers for Springfield will take the 7.30 a. m. or 5 p. m. Trains.

Lines of Hacks and Coaches run in connection with the trains to the following towns: Lebanan, from Deerfield, Wilmington and Clarksville, from Morrow and Corwin, and Goshen and points above from Milford.

The Trains connect with the Mad River and Lake Erie Railroad at Springfield, Columbus and Cleveland Railroad at Columbus, Central Ohio Railroad to Zanesville, and lines of Coaches from Zanesville to Wheeling, etc.

On Sundays but one Train will run, leaving Cincinnati at 2.30 p. m., Columbus, 4.30 a. m., stopping at all way stations on notice.

Fare from Cincinnati to Xenia,	$1 60
" " " " Hillsborough,	1 75
" " " " Chillicothe,	3 75
" " " " Springfield,	2 00
" " " " Cleveland,	6 00
" " " " Shelby,	4 75
" " " " Columbus,	3 00
" " " " Zanesville,	4 80
" " " " Wheeling,	7 15
" " " " Pittsburgh,	7 75

For further information, and Through Tickets, apply to P. W. STRADER, Agent, at the Ticket Office, east side of Broadway, first door north of Front street, Cincinnati.

W. H. CLEMENT, Superintendent.

☞ The company will not be responsible for baggage exceeding fifty dollars in value, unless the same be returned to the conductors or agents, and freight paid at the rate of passage for every $500 in value above that amount. jy2

New York Locomotive Works,

JERSEY CITY.

THE PROPRIETORS of the above Works, having fitted up their Shops with approved modern Machinery and Tools, and secured the services of E. P. GOULD, late Master Machinist on the Hudson River Railroad, are now prepared to execute with despatch orders for Locomotive Engines, Tenders, and Railroad Machinery generally, embracing the latest improvements.

The works being located near the water, and in the immediate vicinity of the New Jersey and Erie Railroads, offer great conveniences for shipping.

BREESE & KNEELAND,
33 Exchange Place,
New York.

je24

REFERENCES.

Messrs. Duncan, Sherman and Company.	Mr. Simeon Draper.
" Winslow, Lanier & Company.	" J. Phillips Phoenix, Pres. N. J. R. R. Co.
" Davis, Brooks & Company.	" J. B. Jervis, Ch. Eng. & Pres. Nor. Ind. R. R.
" Gilbert, Coe & Johnson.	" E. French, Sup't. Hud. Riv. R. R.
" Bogert & Kneeland.	" T. J. Townsend treas. N. Y. & E. Railroad.
" Wadsworth & Sheldon.	

"Gardner's Rock Drill."

DESIGNED for Tunnelling, Quarry use, and Rock Excavations of all descriptions, by the use of which a saving of 50 to 75 per cent is made.

Applications for Territorial Rights and Machines must be made to the Patentee. G. ARTHUR GARDNER,

Trinity Buildings, Broadway,

June 9, 1853. New York.

W. G. ATKINSON,

MINING ENGINEER, SURVEYOR AND DRAFTSMAN,

CUMBERLAND, MARYLAND,

Will attend to business in his Profession in the Coal Region and vicinity.

REFERENCES:

Jerry Cowles, Esq., New York.
Col. Wm. Young, do.
Jas. W. McCulloh, Esq., U. S. Treas., Washington.

June 25, 1853.

$1,000,000 LITTLE MIAMI RAILROAD COMPANY 6 PER CENT FIRST MORTGAGE BONDS FOR SALE.

OFFICE OF WINSLOW LANIER & Co.
No. 53 Wall st., June 18, 1852

THE LITTLE MIAMI RAILROAD COMPANY offer for sale ONE MILLION of their SIX PER CENT BONDS, with Coupons, Interest and Principal payable in New York, the former half-yearly, 1st of November and 1st of May.

They are in sums of $1,000 each, payable 1st of May, 1888.

These Bonds are issued under express authority of the Legislature of the State of Ohio; are a part of the $1,500,000 Loan authorized to be issued by a vote of the stockholders, for the purpose of raising means to make a double track; the greatly increased and increasing business of the road makes this absolutely necessary.

The Little Miami Railroad is eighty-four miles long, commencing at the City of Cincinnati and terminating at Springfield; is now in complete running order; has cost, including equipments, stations, station houses, &c., up to this date, $2,708,109 19.

This Company own stock in the Columbus and Xenia Railroad Company to the amount of $386,000, which now commands a premium of 20 per cent. Also in the Hillsborough Road, to the amount of $11,716.

The receipts of the Road have been as follows:

For the year ending—	
December 1, 1844	$18,632 26
December 1, 1845	46,327 58
December 1, 1846	116,052 02
December 1, 1847	221,139 52
December 1, 1848	280,085 78
December 1, 1849	321,398 82
December 1, 1850	405,597 24
December 1, 1851	487,845 89
December 1, 1852	526,746 35
The receipts from Dec. 1 to May 1, (last 5 months)	260,051 27
For the same time the year before	172,281 18
Increase in 5 months	$87,770 09

The position of this road being the natural, shortest and most usually travelled route from Cincinnati and the vast country south and west of it, to the northern cities, must ever make it one of the most important and profitable lines in the country.

An inspection of a map will show its connections to be many and important. This road operates the Columbus and Xenia road, and runs in connection with the Cleveland and Columbus road, in fact they are now run as one line, greatly to the advantage of all.

Regular annual 10 per cent. dividends have been declared since December, 1847, with an extra dividend of five per cent in 1851. In 1852 two cash dividends, each 10 per cent, were made.

The present surplus and reserved fund amounts to $98,546 16.

The mortgage covers the entire line of road costing to date	$2,708,109 19
To be expended on double track, &c.	1,500,000 00
Value of security	$4,208,109 19

The security for the payment of these Bonds is of the most ample character, being a first and only mortgage or deed of trust (excepting one of $100,000 to the city of Cincinnati) on the Company's Road, Stations, Franchises, net income, &c., to J. F. D. Lanier, Esq., of this city, in trust for the Bondholders, with ample power to take possession of the road, its real and personal estate, franchises &c., and to sell the same to the highest bidder for cash, if default be made in payment of interest or principal. This mortgage is for $1,500,000, and cannot be increased.

The Stock owned by the Road in the Columbus and Xenia and Hillsborough Railways will much more than pay off the $100,000 prior lien to the city of Cincinnati, and all other debts of the Company, except this loan of $1,500,000.

SEALED PROPOSALS will be received for any sum not less than $1,000, until Thursday, the 1st of September next, at 3 o'clock P. M.

Proposals will be addressed to WINSLOW, LANIER & Co., Agents of the Company, No 52 Wall st., New York, indorsed "Proposals for the Little Miami Railroad Bonds."

One-half the purchase money will be required to be paid at the time of accepting the bids, the residue in thirty and sixty days. Any purchaser will be at liberty to pay in full at once.

Interest on the Bonds will run from the day of payment.

The above $1,000,000 will be sold absolutely and without reserve to the highest bidder.

For further information apply at our office.

WINSLOW, LANIER & Co.

CENTRAL RAILROAD CO. OF NEW JERSEY.

$950,000 of Stock.

BY ORDER of the Board of Directors, the Finance Committee of the Central Railroad Co. of New Jersey will open Books of Subscription for the Unissued Stock of the Company, amounting to $950,000, at the BANK of AMERICA, in the City of New York, on the 27th June instant, and keep the same open one week, unless the whole amount shall be sooner subscribed. This Stock comprises all that the Company are entitled to issue, and the money received is to be applied to the construction of a second track, improvements at Elizabethport, and other preparations imperatively demanded by the connections to be opened in another year. This mode of distribution has been adopted, in preference to a pro rata allotment, to enlarge the number of stockholders, and facilitate the acquisition of stock by those now desirous but unable to procure it.

The Ferry, 12 miles, from New York to Elizabethport, and the Railroad, 63 miles, from Elizabethport to Easton, Pa., have been operated thro' the entire distance for nearly a year, and both are fully equipped for the present business. Passengers preferring the land route can go from New York by the way of Newark to Elizabethtown and there intersect the trains.

From the terminus at Easton, the Lehigh Valley Railroad is in active course of construction to Mauch Chunk, 46 miles, and will be opened in July, 1854, connecting New York, winter and summer, with the Lehigh coal fields, by a route of only 125 miles; the Lehigh road having only descending or level grades, and the Central Road no grade over 21 feet to the mile. At Tamaqua the Lehigh road connects with the Catawissa road, now constructing, and to be completed in May, 1854. This connects with the Sunbury and Erie road, now under contract and to be completed in two years. Thus the year 1855 will see a new route of favorable grades and curves only 462 miles in length, opening from New York to Erie on Lake Erie.

A direct and favorable connection with Pittsburg and the Pennsylvania Central Railroad, can also be made through existing roads and charters.

From New Hampton, a point on the Central Railroad of New Jersey, 59 miles from New York, the Warren Branch road in connection with the Delaware, Lackawanna and Western road and the Oswego, Syracuse and Binghamton road, will bring the Lackawanna coal region within 133 miles of New York, with grades of only 21 feet to the mile (except for a few miles in leaving the coal basis at Scranton), and give an unbroken line of six feet gauge, 310 miles in length, from New York to Oswego on Lake Ontario. Of this distance, 156 miles are finished and in operation; 80 miles are under construction and to be opened this Fall; the remaining 74 miles are located, contracted, and to be completed in the Fall of 1854.

It may be interesting to state that the Central Railroad of New Jersey, from its local business, without any of the anticipated connections, has been enabled to pay seven per cent on the cost of the several sections as they have been opened, and that the entire road, with its present local business, is now paying dividends at that rate.

At the close of the fiscal year, April 1, 1853, the financial condition of the company was as follows:

Capital stock	$1,034,700 00
Mortgage bonds, 7 per cent	1,500,000 00
Other bonds, 6 per cent	113,000 00
Bills payable and balance due	249,022 04
Balance of earnings over dividend	1,006 85
	$2,897,728 89

This was represented by the following property:

Railroad, average $37,800 per mile	$2,379,886 64
Ferry interest and boats	140,900 00
Station houses, shops, etc.	78,000 00
Land at Elizabethport	55,016 77
Equipment	218,504 64
Materials, wood, coal, cash, etc	25,420 84
	$2,897,728 89

Full statements of the condition of the company can be obtained at the office, 5 Wall street, where those desirous to examine the road with reference to investment can procure tickets for the trip.

The Finance Committee call the attention of capitalists with the greatest confidence to the present position and future prospects of the road, believing that no road in this vicinity presents greater inducements for investment. They reserve the right to reject or reduce subscriptions, if the whole amount subscribed should exeed the amount to be issued.

Ten per cent will be required to be paid on allotment of the stock, and the remainder in instalments of ten per cent every sixty days on notice, as required. Interest at the rate of seven per cent will be allowed till the instalments have all been called. If the dividends on the full stock are at a higher rate, the difference will be made good to thh scrip Stockholders when their stock is filled up.

Dated New York, June 17, 1853.

JOHN T. JOHNSTON,
JOHN C. GREEN,
WILLIAM E. DODGE,
WILLIAM S. WETMORE,
} Finance Committee.

To Contractors.

OFFICE JAMES RIVER AND KANAWHA Co.,
Richmond, June 18, 1853.

SEALED proposals will be received by the undersigned, at Buchanan, in the county of Botetourt, Virginia, until 5 o'clock P. M. on the first day of August next, for the Locks, Dams, Culverts and Sections of the Canal, from Buchanan to Craig's Creek.

Payments will be made in current bank notes. Besides the usual reservation of twenty per cent on the monthly estimates, the contractors will be required to give ample security, satisfactory to the Board of Directors, for the completion of the work at the time and in the manner specified in the contracts.

Plans of the above works will be exhibited by Edward Lorraine, Assistant Engineer at Buchanan, and specifications will be delivered by him, and also at the Company's office in Richmond, on and after the 15th day of July.

Time will be taken for the consideration of the bids until the 5th day of August, when, if satisfactory, the several jobs above advertised will be let.

WALTER GWYNN,
Chief Engineer J. R. and K. Co.